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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
Battery pack output	Normal	13.39	13.28	Yes	No
Battery pack output	Single Fault ¹⁾	20.96	13.75	Yes	Yes
Battery pack output	Single Fault ²⁾	13.76	13.54	Yes	No
Battery pack output	Single Fault ³⁾	11.61	11.61	Yes	No
<p>Supplementary Information:</p> <p>A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.</p> <p>If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.</p> <p>A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.</p> <p>1. R13 short circuit</p> <p>2. Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit</p> <p>3. Q4, Pin 2, D - Pin 3, S2 short circuit</p>					

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type.....:			—
Manufacturer			—
Cat no.:			—
Pressure (cold) (MPa).....:			MS_
Pressure (operating) (MPa)			MS_
Operating time (minutes)			—
Explosion method			—
Max particle length escaping enclosure (mm) .:			MS_
Max particle length beyond 1 m (mm).....:			MS_
Overall result			
Supplementary information:			

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B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5	1.94	2	10.13	-	-	-	Empty battery pack charging only
Supplementary information:							
1) The measured input current at rated voltage shall be. 110 % of rated current.							

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Clause	Requirement + Test					Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating ...:						See appended table 4.1.2		—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank USB1 Output	O/L	—	5	—	—	K	Cell body= 35.1 °C, Ambient= 22.1°C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Output (USB1+US B2 port)	O/L	—	5	—	—	K	Cell body= 35.7 °C, Ambient= 22.1°C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Power bank USB1 Output	O/L	—	4	—	—	K	External enclosure near : Q2=43.2 °C, Q8&Q9=42.9 °C, Q10&Q11=35.4 °C, L2=46.3 °C, Ambient= 25 °C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output terminal + to -	S	—	24	—	—	K	Cell body=55.6°C, Ambient=55.3°C	Observation: Unit shut down. Temperature stabilized, Damaged:-
Power bank input	Normal Overcharge	5.25	14	—	—	K	Cell body= 25.3 °C, Ambient= 20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output (USB1 port)	Normal Excessive discharge	—	14	—	—	K	Cell body= 35.3 °C, Ambient= 22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information: Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.								

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Clause	Requirement + Test	Result - Remark	Verdict

B.4		TABLE: Fault condition tests						P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank input	Q2 Pin 3- Pin 5 short, Overcharge	5.25	14	—	—	K	Cell body=25.3°C, Ambient=20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank input	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge	5.25	14	—	—	K	Cell body= 25.7 °C, Ambient= 20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Excessive discharge	—	14	—	—	K	Cell body=35.9°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q4, Pin 2, D - Pin 3, S2 short, Excessive discharge	—	14	—	—	K	Cell body=36.6°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	R12 short, Excessive discharge	—	14	—	—	K	Cell body=35.8°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

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Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Fault condition tests (cont.)							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank input	Q2 Pin 3- Pin 5 short, Overcharge	5.25	8	—	—	K	External enclosure near : Q2=35.1 °C, Q8&Q9=37.5 °C, Q10&Q11=31.7 °C, L2=35.8 °C, Ambient= 25 °C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank input	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge	5.25	8	—	—	K	External enclosure near : Q2=36.5 °C, Q8&Q9=38.4 °C, Q10&Q11=31.5 °C, L2=36.2 °C, Ambient= 25 °C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=47.1 °C, Q8&Q9=45.1 °C, Q10&Q11=40.3 °C, L2=47.5 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

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Clause	Requirement + Test					Result - Remark		Verdict
B.4	TABLE: Fault condition tests (cont.)							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank Output	Q4, Pin 2, D - Pin 3, S2 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=42.7 °C, Q8&Q9=44.8 °C, Q10&Q11=39.0 °C, L2=44.0 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	R12 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=47.0 °C, Q8&Q9=46.8 °C, Q10&Q11=40.5 °C, L2=44.2 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M	TABLE: Batteries								P
The tests of Annex M are applicable only when appropriate battery data is not available									—
Is it possible to install the battery in a reverse polarity position?						No. The reverse polarity installation is prevented by construction			—
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	—	—	—	5.25 Vdc, 1.93 A	5.25 Vdc, 2 A ¹⁾	2.4A	2.4 A ¹⁾	—	—
Max. current during fault condition	—	—	—	5.25 Vdc, 2 A	5.25 Vdc, 2 A ¹⁾	2.4A	2.4 A ¹⁾	—	—
Test results:						Appropriate battery date is available		Verdict	
- Chemical leaks						There was no chemical leaks		P	
- Explosion of the battery						The battery did not explode resulting in injury to a user		P	
- Emission of flame or expulsion of molten metal						There was no emission of flame or expulsion of molten metal outside the battery operated product		P	
- Electric strength tests of equipment after completion of tests								N/A	
Supplementary information:									
1) Considered for real time clock battery. Also see appended table B.3, B.4.									
2) Cell protected circuit diagram, please see the appendix 2.									

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Clause	Requirement + Test	Result - Remark	Verdict

Annex M.4		Table: Additional safeguards for equipment containing secondary lithium batteries			P
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
Cell No.1	Normal (charging)	4.12	1.34	27.2	No exceeding the max. specified charging voltage and current
	Abnormal (Overcharge)	4.12	1.34	25.3	No exceeding the max. specified charging voltage and current
	Single fault –SC/OC (Q2 Pin 3- Pin 5 short, Overcharge)	4.13	0	25.3	No exceeding the max. specified charging voltage and current
	Single fault –SC/OC (Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge)	4.13	1.44	25.7	No exceeding the max. specified charging voltage and current

Annex M.4		Table: Additional safeguards for equipment containing secondary lithium batteries			P
Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	
Power bank	-10	Stop charging and unit shut down	60	Stop charging and unit shut down	
Supplementary Information:					



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IEC 62368-1						
Clause	Requirement + Test		Result - Remark			Verdict
Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
USB1 port	Normal condition	5.16	2.77	≤ 8.0 A	10.36	≤ 100 VA
USB1 port	Single fault condition ((Q4, Pin 2, D - Pin 3, S2), short circuit)	5.16	3.45	≤ 8.0 A	12.06	≤ 100 VA
USB1 port	Single fault condition (Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit)	5.14	2.75	≤ 8.0 A	9.92	≤ 100 VA
USB1 port	Single fault condition (R12 short circuit)	5.13	4.74	≤ 8.0 A	15.31	≤ 100 VA
Supplementary Information: 1) Sc=Short circuit, Oc=Open circuit.						

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Enclosure	¹⁾	1.5	30 N	5 s	Intact
Enclosure	¹⁾	1.5	100 N	5 s	Intact
Supplementary information:					
1) See appended table 4.1.2.					

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					
1) See appended table 4.1.2.					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Enclosure	1)	1.5	1000	Intact	
Enclosure ³⁾	1)	1.5	1000	For M.4.4.3 drop: Measure Voltage before Test (V) d.c.:5.16 ; Measure Voltage during the following 24 hour period Test (V) d.c.:5.16 ²⁾ ; Not fire, explode, or leak	
Supplementary information:					
1) See appended table 4.1.2.					
2) The voltage difference shall not exceed 5%. (M.4.4.3)					
3) After 1 m drop, the charging/discharging circuit functions are still available operation and all safeguards are effective. (M.4.4.4)					

T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	C6200GG	1.5	70	7	Not defeat the safe guard function
Supplementary information:					

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List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or WMT/CTF stage 2 procedure has been used.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)			
Differences according to : EN 62368-1:2014			
Attachment Form No. : EU_GD_IEC62368_1B			
Attachment Originator : Intertek Semko AB			
Master Attachment : Date (2015-08)			
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	CENELEC COMMON MODIFICATIONS (EN)		—
1	NOTE Z1		N/A
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a) Included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A
5.4.2.3.2.4	Interconnection with external circuit		N/A
10.2.1	Additional requirements in 10.5.1		N/A
10.5.1	RS1 compliance measurement conditions		N/A
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N/A
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N/A
G.7.1	NOTE Z1		N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		—
4.1.15	Denmark, Finland, Norway and Sweden: Class I pluggable equipment type A marking	The EUT is a Class III equipment	N/A
4.7.3	United Kingdom: Torque test socket-outlet BS 1363, and the plug part BS 1363.		N/A
5.2.2.2	Denmark: Warning for high touchcurrent		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	Finland and Sweden: Separation of the telecommunication network from earth		N/A
5.5.2.1	Norway: Capacitors rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden: Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N/A
5.6.1	Denmark: Protection for pluggable equipment type A; integral part of the equipment	The EUT is a Class III equipment	N/A
5.6.4.2.1	Ireland and United Kingdom: The protective current rating is taken to be 13 A		N/A
5.6.5.1	Ireland and United Kingdom: Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N/A
5.7.5	Denmark: The installation instruction affixed to the equipment if high protective conductor current		N/A
5.7.6.1	Norway and Sweden: Television distribution system isolation text in user manual		N/A
5.7.6.2	Denmark: Warning for high touch current		N/A
B.3.1 and B.4	Ireland and United Kingdom: Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Denmark: Appliances rated ≤ 13 A provided with a plug according to DS 60884-2-D1:2011.		N/A
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N/A
	If a single-phase equipment having rated >13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N/A
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.		N/A
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N/A
	Mains socket-outlets with earth in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a		N/A
G.4.2	United Kingdom: The plug part of direct plug-in equipment assessed to BS 1363		N/A
G.7.1	United Kingdom: Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N/A
G.7.1	Ireland: Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N/A
G.7.2	Ireland and United Kingdom: A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		—
10.5.2	Germany: Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N/A
F.1	Italy: The power consumption in Watts (W) indicated on TV receiver and in instruction for use		N/A
	TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.		N/A
	Marking for controls and terminals in Italian language.		N/A
	Conformity declaration according to the above requirements in the instruction manual		N/A
	First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed. U.S.A. NATIONAL DIFFERENCES	
Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to	CSA/UL 62368-1:2014
Attachment Form No.	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
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Clause	Requirement + Test	Result - Remark	Verdict
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		P
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment	The EUT is a Class III equipment	N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex M	Battery packs for stationary applications comply with special component requirements.		P
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.		N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A



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Appendix 1

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Report No. 170800124TWN-001

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A



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Appendix 1

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Report No. 170800124TWN-001

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A



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Appendix 1

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Report No. 170800124TWN-001

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		N/A
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.		N/A



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Appendix 1

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Report No. 170800124TWN-001

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A



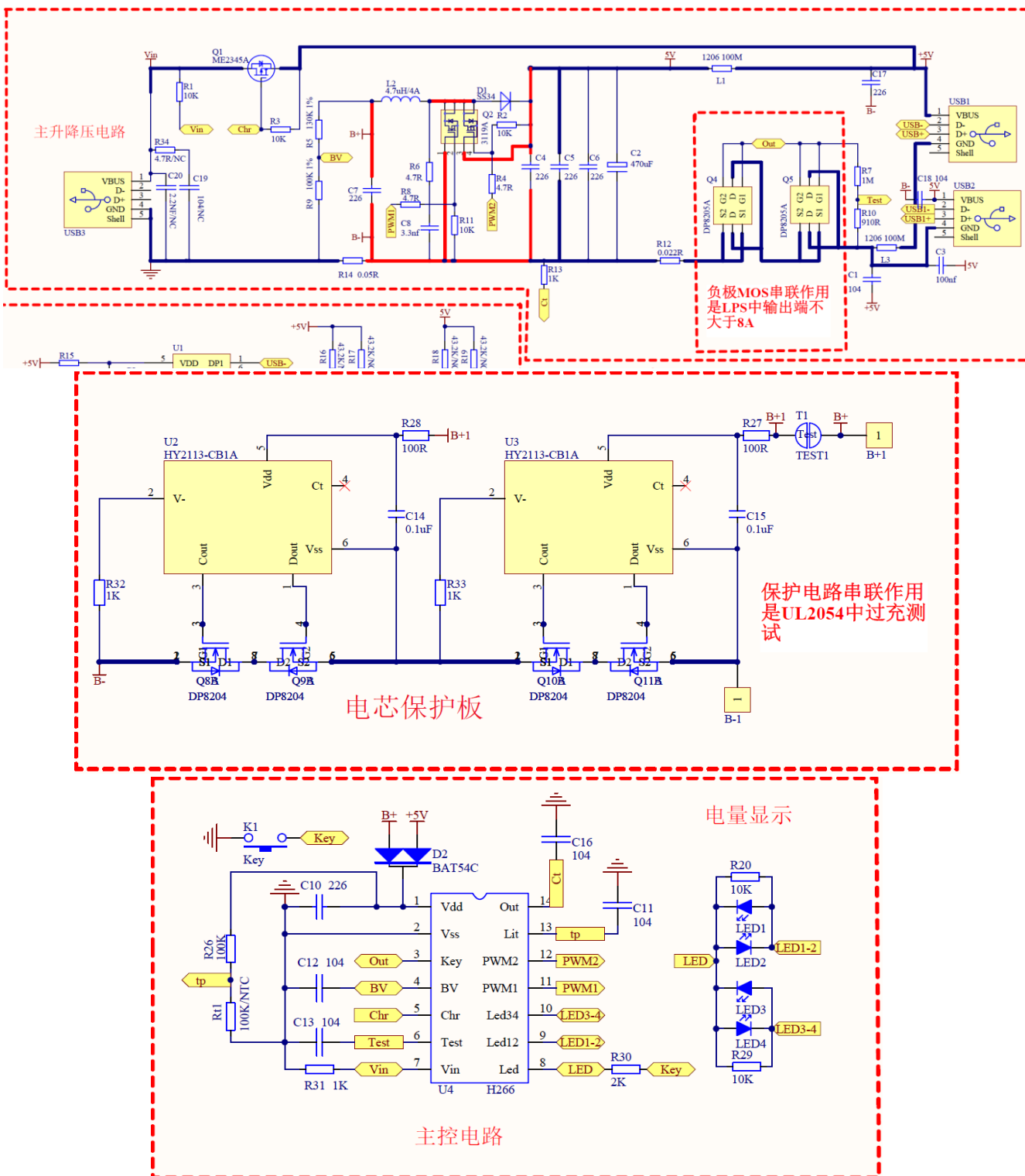
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Appendix 2
Circuit and Layout drawing

Page 1 of 2

Report No. 170800124TWN-001

Circuit





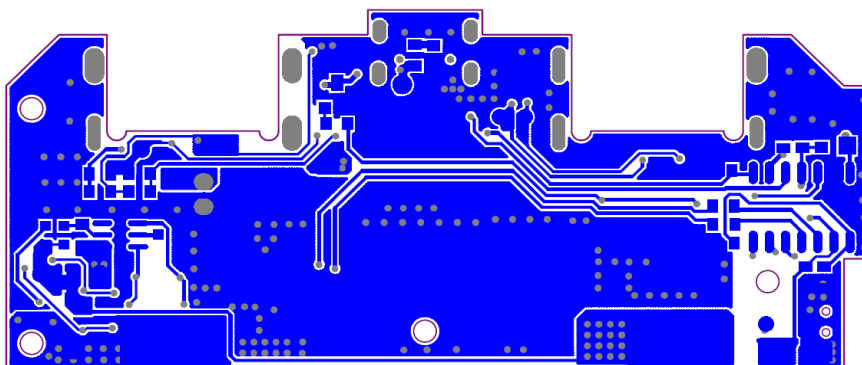
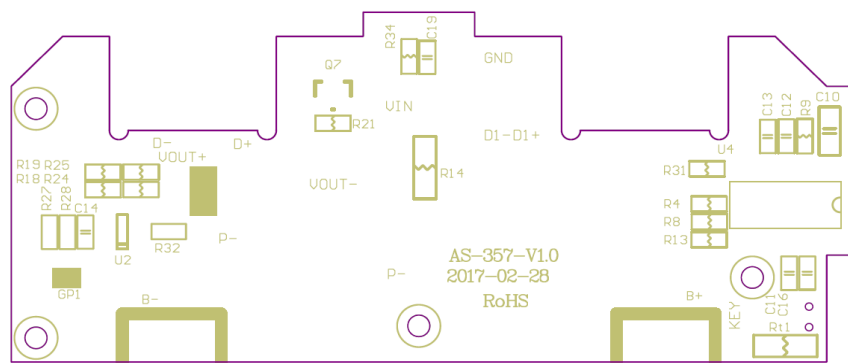
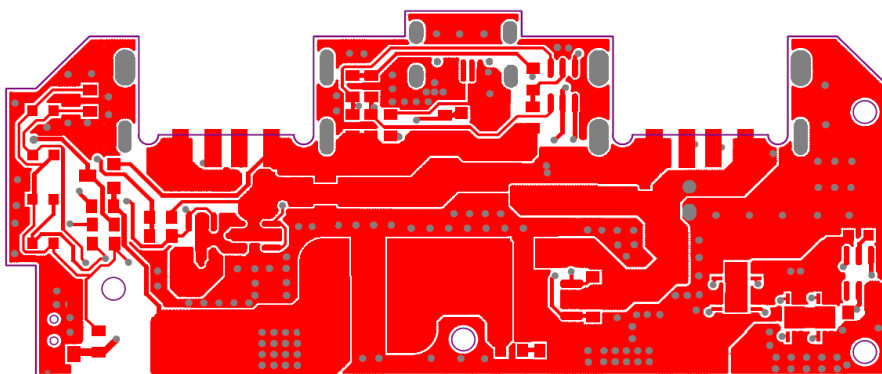
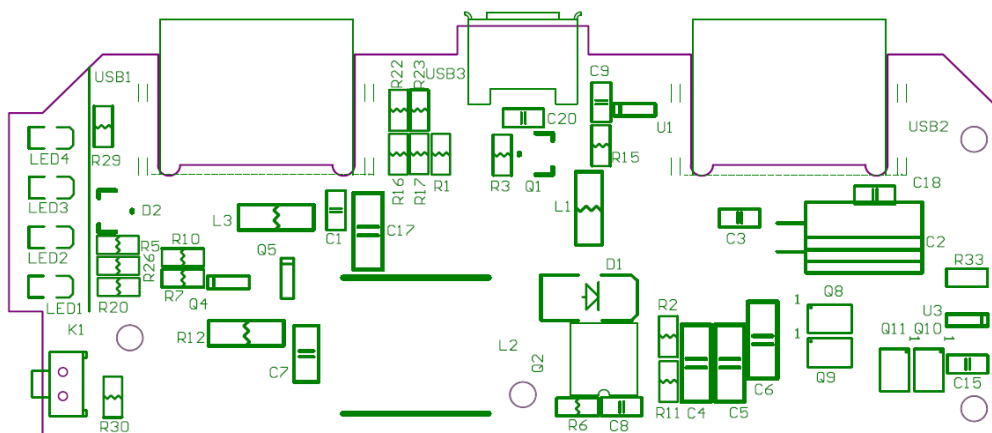
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Appendix 2
Circuit and Layout drawing

Page 2 of 2

Report No. 170800124TWN-001

Layout





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Photos

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Report No. 170800124TWN-001

External view of EUT





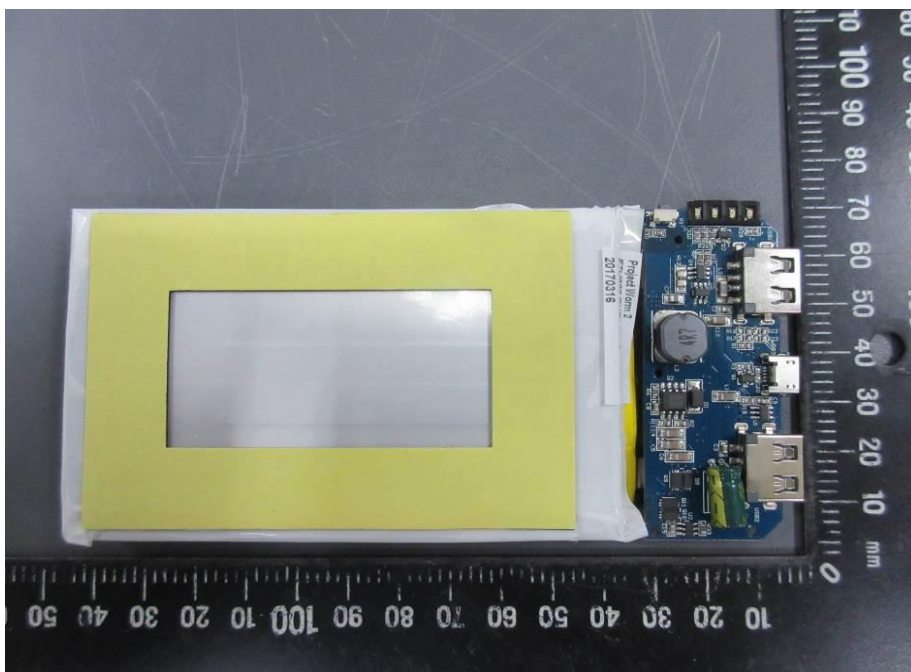
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Photos

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Report No. 170800124TWN-001

Internal view of EUT





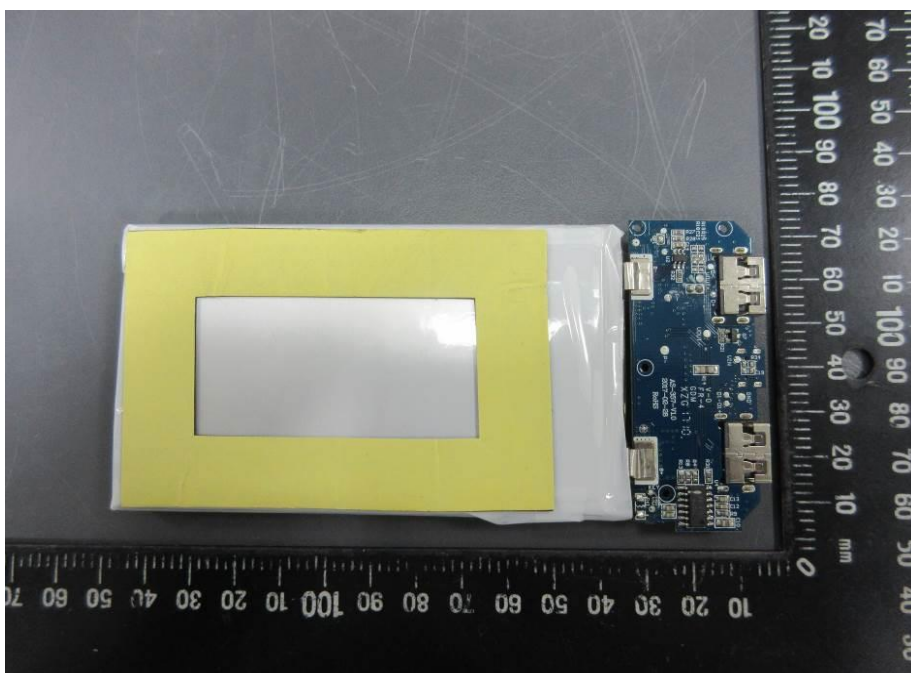
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Photos

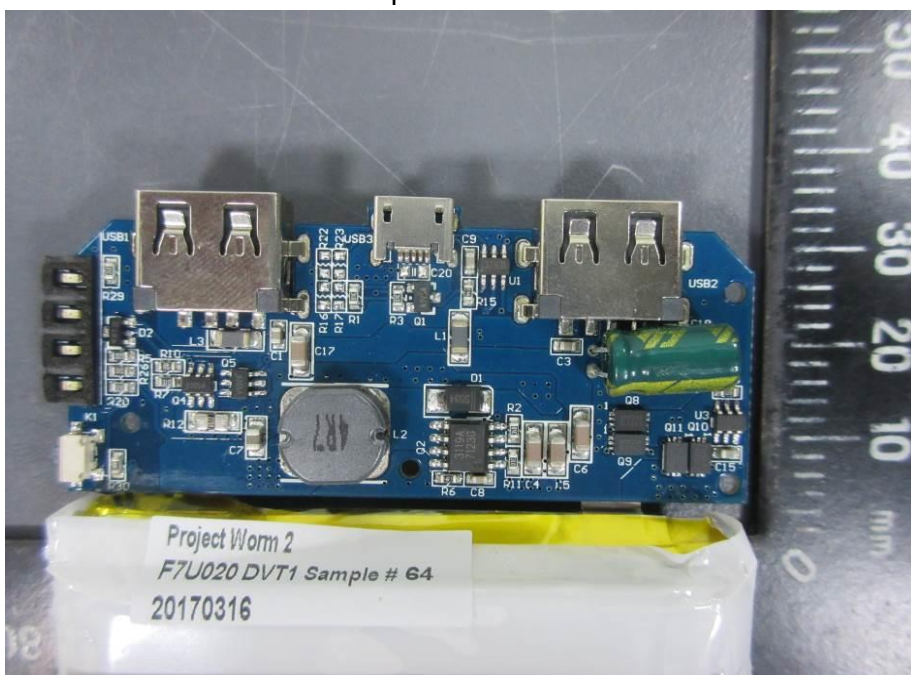
Page 3 of 4

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Internal view of EUT



Top view of PCB





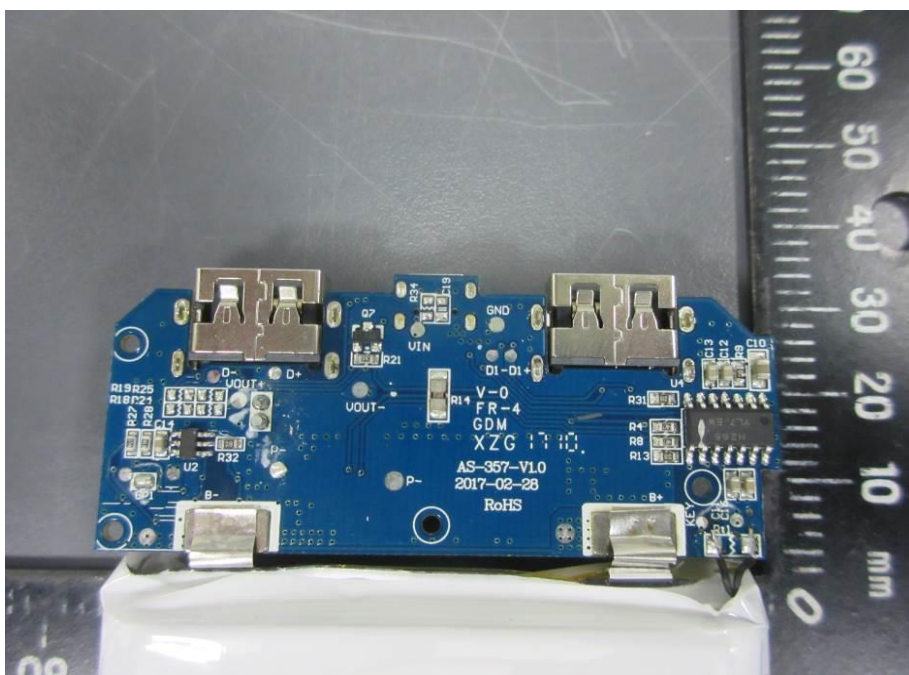
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Photos

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Report No. 170800124TWN-001

Bottom view of PCB



From: Nick Kalra
Sent: Wednesday, October 18, 2017 3:54 PM PDT
To: Norbert von Boode
Subject: Fw: Worm 1, 2 and 3 IEC 62368-1 test report
Attachments: 170800124TWN-001_CCA IEC 62368-1.pdf, 170800125TWN-001 IEC 62368-1.pdf, RE F7U021, status tracker from ITS.msg

For your records. Pocket Power temperature on new UL/IEC. Summarized results:
Pocket Power 5k; 6 degrees over
Pocket Power 10k: 2 degrees over
Pocket Power 15k: 5 degrees over
Rajesh is sending Power Packs 5k and 10k to different labs to see if there is variation in labs testing. Will get data on that in 2-3 weeks.

From: Rajesh Karki
Sent: Monday, October 16, 2017 7:23 PM
To: Nick Kalra
Subject: FW: Worm 1, 2 and 3 IEC 62368-1 test report

Attached is the test report is for Worm 1 and 2. Please see attached table 5.4.1.4, 6.3.2, 9.0, B.2.6 Temperature measurements.

For Worm 3 – See attached email.

Thanks
Rajesh

From: Jay Tu
Sent: Monday, October 16, 2017 7:16 PM
To: Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: RE: Worm 1, 2 and 3 IEC 62368-1 test report

Hi Rajesh,

Please see the attachment.

Thanks.

Best Regards

Jay Tu
Regulatory Compliance Engineer

Belkin

O 310 751 5559
M +886 925 445 446



From: Rajesh Karki
Sent: Tuesday, October 17, 2017 10:12 AM
To: Jay Tu <Jay.Tu@belkin.com>
Subject: Worm 1, 2 and 3 IEC 62368-1 test report

Hi Jay,
Can you please send me the test reports for IEC 62368-1 for Worm 1, 2 and 3.
I checked my emails and was unable to find it in my emails. We need to provide to PMs asap so
can you please check if you have it.
If not than I will checkup the backup of my old laptop tomorrow.

Thanks
RAJESH KARKI
Principal Regulatory Compliance Engineer

Belkin International
O [+1 310 751 2817](tel:+13107512817)
M [+1 949 735 9726](tel:+19497359726)
Skype: karki.rajesh



Test Report issued under the responsibility of:

intertek

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TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	170800124TWN-001
Date of issue	August 1, 2017
Total number of pages	64 pages test report + Appendix 1, 12 pages + Appendix 2, 2 pages + Photos, 4 pages.
Applicant's name	Belkin International Inc.
Address	12045 East Waterfront Drive, Playa Vista, CA 90094, USA
Test specification:	
Standard	IEC 62368-1:2014 (Second Edition) _ modified
Test procedure	Test Report
Non-standard test method	N/A
Test Report Form No.	-
Test Report Form(s) Originator	-
Master TRF	-
General disclaimer:	
The test results presented in this report relate only to the object tested.	
<small>Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: http://www.intertek-twn.com/terms/ . Intertek's responsibility and liability are limited to the terms and conditions of the agreement.</small>	
<small>This report is made solely on the basis of your instructions and / or information and materials supplied by you and provide no warranty on the tested sample(s) be truly representative of the sample source. The report is not intended to be a recommendation for any particular course of action, you are responsible for acting as you see fit on the basis of the report results. Intertek is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received and accepts no responsibility to any parties whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works. This report does not discharge or release you from your legal obligations and duties to any other person. You are the only one authorized to permit copying or distribution of this report (and then only in its entirety). Any such third parties to whom this report may be circulated rely on the content of the report solely at their own risk.</small>	



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Test Item description	Rechargeable Li-Ion Battery Pack
Trade Mark	belkin
Manufacturer	Belkin International Inc. 12045 East Waterfront Drive, Playa Vista, CA 90094, USA
Model/Type reference	F7U020
Ratings	Input: 5 Vdc, 2 A, Output: 5 Vdc, 2.4A, 6070 mAh (each port 2.4 A max) Class III

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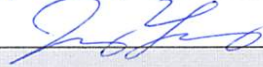
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Testing procedure and testing location:		
<input checked="" type="checkbox"/>	Testing Laboratory:	Intertek Testing Services Taiwan Ltd.
Testing location/ address		5F, No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan
Tested by (name + signature)..... :		Mark Chou 
Approved by (name + signature)		Jacky Yang 



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List of Attachments (including a total number of pages in each attachment):

Appendix 1 (12 pages) – National Differences

Appendix 2 (2 pages) –Circuit and Layout drawing

Photos (4 pages)

Summary of testing:**Tests performed (name of test and test clause):**

4.6.2 10 N steady force test
 5.4.1.4, 6.3.2, 9.0, B.2.6 Temperature measurements
 6.2.2 Electrical power sources (PS) measurements for classification
 6.2.3.2 Determination of potential ignition sources (resistive PIS)
 B.2.5 Input test
 B.3 Simulated abnormal operating conditions
 B.4 Simulated single fault conditions
 F.3.10 Marking durability test
 M.3, M.4 Batteries test
 Q.1 Limited power source test
 T.3 Steady force test – 30 N
 T.4 Steady force test – 100 N
 T.7 Drop test
 T.8 Stress relief Test

Testing location:

Intertek Testing Services Taiwan Ltd.



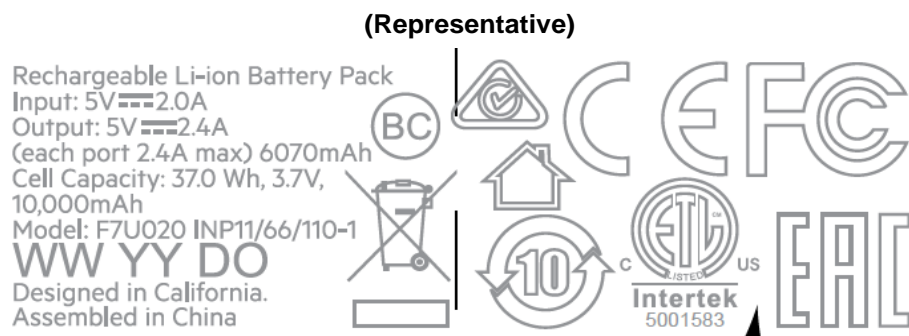
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Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

**Note:**

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.



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TEST ITEM PARTICULARS:	
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection.....	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input checked="" type="checkbox"/> External Circuit - not Mains connected - <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input checked="" type="checkbox"/> None
Supply Connection – Type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: not directly connected to the mains
Considered current rating of protective device as part of building or equipment installation	N/A; Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: Not direct connected to the mains
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input checked="" type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	40 °C for charge conditions; 40 °C for discharge conditions
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP____
Power Systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V _{L-L}
Altitude during operation (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> 5000 m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Mass of equipment (g)	<input checked="" type="checkbox"/> Approx. 222.77 g

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POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
TESTING:	
Date of receipt of test item.....:	April 10, 2017
Date (s) of performance of tests	April 26, 2017 – July 4, 2017



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GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p> <p>This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.</p> <p>When determining the test conclusion, the Measurement Uncertainty of test has been considered.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC62368-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided :	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) :	1. SHENZHEN DBK ELECTRONICS CO., LTD 1st-5th floor Building 1, Jinyuan company Longhua Industrial Park, the north of Longguan Rd Hualian Community, Longhua Town, 518109 Baoan District, ShenZhen, Guangdong, China 518109



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GENERAL PRODUCT INFORMATION:**Product Description –**

The tested product is a Rechargeable Li-Ion Battery Pack for use in a general environment and the equipment is considered as transportable and Class III equipment.

The EUT has one micro USB input port and two USB output ports.

The Rechargeable Li-Ion Battery Pack, model F7U020, is equipped with one cell (1S1P) and the capacity is 6070 mAh.

The enclosures are fixed together by mechanical fixing.

The product was submitted and evaluated for the manufacturer's recommended maximum ambient (T_{mra}) 40°C for charge and discharge 40°C conditions.

The charging / discharging specification are listed as below:

Maximum Continue Charging Voltage/ Current: 5.25 Vdc / 2 A

Maximum Continue Discharge Current or Power: 2.4 A(USB1 output or USB 2 output or USB1+USB2 output)

Model Differences –

N/A

Additional application considerations – (Considerations used to test a component or sub-assembly) –

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	FI	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)



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ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
ES1	
Source of electrical energy	Corresponding classification (ES)
Cells output (1S1P)	ES1
Power bank USB output	ES1
+5 V dc micro USB input	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
PS2	
Source of power or PIS	Corresponding classification (PS)
Cells output (1S1P)	PS2
Power bank USB output	PS2 (Comply with Clause Q.1)
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
Glycol	
Source of hazardous substances	Corresponding chemical
Rechargeable Li-polymer cell	Li-ion
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Equipment mass	MS1
Sharp edge and corner	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
TS1	
Source of thermal energy	Corresponding classification (TS)
External plastic enclosure	TS2
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
RS1	
Type of radiation	Corresponding classification (RS)
Indicating lights – LEDs	RS1

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ENERGY SOURCE DIAGRAM

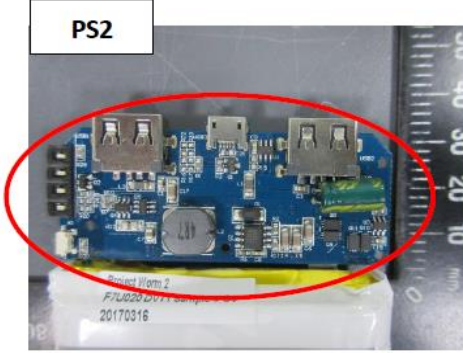
Indicate which energy sources are included in the energy source diagram. Insert diagram below

☒ ES ☒ PS ☐ MS ☒ TS ☐ RS

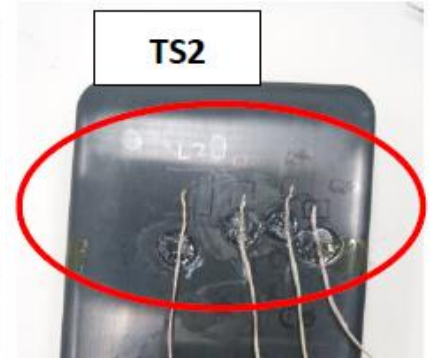
ES1



PS2



TS2





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OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES1: Battery circuit	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Plastic enclosure	PS2: <100 Watt circuit	Comply with Clause 6.3	Fire enclosure	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	Hazardous material (cell)	N/A	N/A	Enclosure
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS1: Mass ≤ 7 kg	N/A	N/A	N/A
Ordinary person	MS1: Sharp edges and corners	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS2: All accessible parts	Need to provide Instructional safeguard complies with 9.4.2	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: Indicating lights	N/A	N/A	N/A
Supplementary Information:				
1) See attached energy source diagram for additional details.				
2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	(see appended tables 4.1.2)	P
4.1.2	Use of components	Components, which are certified to IEC and/or national standards, are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment	P
4.1.3	Equipment design and construction	Considered	P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	All safeguards comply with the relevant robustness tests and requirement	P
4.4.4.2	Steady force tests.....:	(See Annex T.3, T.4, T.7 and T.8)	P
4.4.4.3	Drop tests.....:	(See Annex T.7)	P
4.4.4.4	Impact tests.....:		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:		N/A
4.4.4.6	Glass Impact tests.....:		N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:	No such type safeguard provided	N/A
4.4.4.9	Accessibility and safeguard effectiveness	During and after the tests, the EUT still complies with the relevant requirement of this standard	P
4.5	Explosion	No explosion occurs	P
4.6	Fixing of conductors	See below	P
4.6.1	Fix conductors not to defeat a safeguard	No conductors defeat a safeguard	P
4.6.2	10 N force test applied to.....:	Conductive tab terminals of internal cell	P
4.7	Equipment for direct insertion into mains socket - outlets	The EUT is not such type equipment	N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm).....:		N/A
4.8	Products containing coin/button cell batteries	No lithium coin or button cell batteries within the EUT	N/A
4.8.2	Instructional safeguard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object	No opening on the EUT	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications	The EUT is a Class III battery pack and considered as ES1 only	P
5.2.2	ES1, ES2 and ES3 limits	Considered	P
5.2.2.2	Steady-state voltage and current	The EUT is a Class III battery pack and considered as ES1 only	P
5.2.2.3	Capacitance limits		N/A
5.2.2.4	Single pulse limits		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringling signals	No such ringing signal within the EUT	N/A
5.2.2.7	Audio signals	No audio amplifier within the EUT	N/A
5.3	Protection against electrical energy sources	See below	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	The EUT is a Class III equipment and considered as ES1 only. No safeguard is required.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V		N/A
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	No hygroscopic materials used as insulation. Only Functional Insulation is considered and complied with Annex B.4.4	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.3	Humidity conditioning	The EUT is a Class III equipment and considered as ES1 only	N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such device within the EUT	N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances	Only Functional Insulation is considered and complied with Annex B.4.4	N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage		N/A
	a) a.c. mains transient voltage		—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages		N/A
5.4.3	Creepage distances	Only Functional Insulation is considered and complied with Annex B.4.4	N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material	No such device within the EUT	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material	No such device within the EUT	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard	No such insulation of internal wire as part of supplementary insulation	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%).....		—
	Temperature (°C)		—
	Duration (h)		—
5.4.9	Electric strength test		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	Not connected to such external circuit	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.11	Insulation between external circuits and earthed circuitry		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General	See below	N/A
5.5.2	Capacitors and RC units	No such devices used as safeguard	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's	No such component within the EUT	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable	No antenna terminal within the EUT	N/A
5.6	Protective conductor		
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors	No power cord provided	N/A
	Protective earthing conductor size (mm^2)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm)		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	The EUT is a Class III equipment and considered as ES1 only.	N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)		—
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....		—
	Measured current (mA).....		—
	Instructional Safeguard.....		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	Not connected to a coaxial cable	N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current to external circuits		N/A
5.7.7	Summation of touch currents from external circuits	Not such device	N/A
	a) Equipment with earthed external circuits Measured current (mA).....		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	See below	P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault	(See appended table 6.2.2)	P
6.2.2.4	PS1	(See appended table 6.2.2)	P
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources	See below	P
6.2.3.1	Arcing PIS	No arcing PIS within the EUT	N/A
6.2.3.2	Resistive PIS	The EUT is considered as a resistive PIS under single fault condition (see table 6.2.3.2). The fire enclosure is also provided.	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	No combustible materials on outside fire enclosure	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread (also see sub-clause 6.4.4, 6.4.5, 6.4.6)	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions		N/A
	Special conditions for temperature limited by fuse		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.4	Control of fire spread in PS1 circuits	No supplementary safeguards are needed	P
6.4.5	Control of fire spread in PS2 circuits	Considered	P
6.4.5.2	Supplementary safeguards	Components and materials have adequate flammability classification (See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	No PS3 circuits within the EUT	N/A
6.4.7	Separation of combustible materials from a PIS	See below	P
6.4.7.1	General	See below	P
6.4.7.2	Separation by distance	Considered and PCB is min. V-1.	P
6.4.7.3	Separation by a fire barrier	No such parts	N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier	No such parts	N/A
6.4.8.2.2	Requirements for a fire enclosure	Fire enclosure is provided	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	Considered	P
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings on the fire enclosure	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)	No such door or cover.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	The fire enclosure is made of V-0 class material	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		P

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Clause	Requirement + Test	Result - Remark	Verdict
	External port limited to PS2 or complies with Clause Q.1	All I/O ports comply with Annex Q.1	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances	Checked	P
7.3	Ozone exposure	No ozone produced.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries.....	(See Annex M)	P

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See below	P
8.2	Mechanical energy source classifications	Sharp edges and corners: MS1; Equipment mass: MS1	P
8.3	Safeguards against mechanical energy sources	Considered	P
8.4	Safeguards against parts with sharp edges and corners	The outer surface of the EUT is smoothed. No sharp edges and corners	P
8.4.1	Safeguards	Not required	N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard	Not required	—
8.5.4	Special categories of equipment comprising moving parts	No such device within the EUT	N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps	No high pressure lamps.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....:		N/A
8.6	Stability	The mass of EUT is MS1	P
8.6.1	Product classification	No stability requirements	P
	Instructional Safeguard	Not required	—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)		N/A
	Position of feet or movable parts		—
8.7	Equipment mounted to wall or ceiling	The EUT is not such equipment	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force		N/A
8.8	Handles strength	No such device within the EUT	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No such device within the EUT	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	No such device within the EUT	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment	No such device	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable N		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No such device	N/A
	Button/Ball diameter (mm).....:		—

9	THERMAL BURN INJURY		—
9.2	Thermal energy source classifications	After reviewing, accessible parts are classified TS2, can't be classified TS1	—
9.3	Safeguard against thermal energy sources	After reviewing, accessible parts are classified TS2, can't be classified TS1	—
9.4	Requirements for safeguards		—
9.4.1	Equipment safeguard	(See appended table B.3 & B.4)	—
9.4.2	Instructional safeguard	Need to provide Instructional safeguard	—

10	RADIATION		P
10.2	Radiation energy source classification	See below	P
10.2.1	General classification	Indicating LEDs	P
10.3	Protection against laser radiation	The EUT does not produce laser radiation	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation	The EUT does not produce significant visible, infrared and UV radiation	N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Personal safeguard (PPE) instructional safeguard..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 . :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation..... :		N/A
10.4.1.g)	Materials resistant to degradation UV :		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard :		N/A
10.5	Protection against x-radiation	The EUT does not produce x-radiation	N/A
10.5.1	X- radiation energy source that exists equipment : Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation :		—
	Abnormal and single-fault condition :		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	No such device.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A) :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)	No such device within the EUT	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)..... :		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions	See below	P
B.2.1	General requirements..... :	(See appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	No such component within the EUT (See Annex E)	N/A
B.2.3	Supply voltage and tolerances	Input: 5 Vdc, 2 A	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :	See below	P
B.3.2	Covering of ventilation openings	No openings	N/A
B.3.3	D.C. mains polarity test	Not connected to DC mains	N/A
B.3.4	Setting of voltage selector	No setting of voltage selector within the EUT	N/A
B.3.5	Maximum load at output terminals	Considered	P
B.3.6	Reverse battery polarity	The reverse polarity installation is prevented by construction	P
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No audio amplifier within the EUT	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remain effective	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	Approved NTC device has been provided	P
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	See below	P

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the EUT	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	No such component intended for short time operation or intermittent operation	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions ... :	(See Annex M)	P
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	The EUT does not produce UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators	No such device within the EUT	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions	No audio amplifier within the EUT	N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions	(See appended table B.3 & B.4)	N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions – Language	English. However, the local language for each country that would be marketed shall be provided	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols are used according to IEC 60027-1	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphic symbols are used according to IEC 60417-1 or ISO 3864-2 or ISO 7000	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Marking is on enclosure which is not removable part	P
F.3.2	Equipment identification markings	See below	P
F.3.2.1	Manufacturer identification	belkin	—
F.3.2.2	Model identification	F7U020	—
F.3.3	Equipment rating markings	See below	P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....	===	—
F.3.3.4	Rated voltage	Input: 5 Vdc, 2 A, Output: 5 Vdc, 2.4 A	—
F.3.3.4	Rated frequency		—
F.3.3.6	Rated current or rated power	Input: 5 Vdc, 2 A, Output: 5 Vdc, 2.4 A	—
F.3.3.7	Equipment with multiple supply connections	The EUT is not such type equipment	N/A
F.3.4	Voltage setting device	Only one power supply voltage, no voltage setting within the EUT	N/A
F.3.5	Terminals and operating devices	See below	N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings	No such component within the EUT	N/A
F.3.5.2	Switch position identification marking	No such marking used	N/A
F.3.5.3	Replacement fuse identification and rating markings	No such component within the EUT	N/A
F.3.5.4	Replacement battery identification marking	Battery can't be replaced by user	N/A
F.3.5.5	Terminal marking location	No such component within the EUT	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6	Equipment markings related to equipment classification	See below	P
F.3.6.1	Class I Equipment	The EUT is a Class III equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal	Not permanently connected equipment	N/A
F.3.6.1.3	Protective bonding conductor terminals	Evaluated at approved power supply	N/A
F.3.6.2	Class II equipment (IEC60417-5172)	The EUT is a Class III equipment	N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	IPX0	—
F.3.8	External power supply output marking	Class III equipment	N/A
F.3.9	Durability, legibility and permanence of marking	The marking on the EUT is durable and legible	P
F.3.10	Test for permanence of markings	After rubbing test by water and petroleum spirit, the marking is still legible; it is not easily removed .	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	The EUT is not such type equipment	N/A
	b) Instructions given for installation or initial use	Need to be further evaluated	—
	c) Equipment intended to be fastened in place	The EUT is not such type equipment	N/A
	d) Equipment intended for use only in restricted access area	The EUT is not such type equipment	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals	N/A
	f) Protective earthing employed as safeguard	Class III equipment	N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment	Need to be further evaluated	—
	i) Permanently connected equipment not provided with all-pole mains switch	The EUT is not a permanently connected equipment	N/A
	j) Replaceable components or modules providing safeguard function	No replaceable components or modules within EUT	N/A
F.5	Instructional safeguards		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	Need to be further evaluated	—
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements	No switch is used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	No such devices within the EUT	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs	No such devices within the EUT	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No such devices within the EUT	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors	Approved thermistor is used	P
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....		N/A
G.4	Connectors		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....		N/A
	Position.....		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....		—
G.5.3.3	Overload test		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General	No such wire within the EUT	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non- detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such device within the EUT	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		N/A
G.13.1	General requirements	No requirement of insulation on printed boards within the EUT	N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	(See G.13)	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such devices within the EUT	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such devices within the EUT	N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No such devices within the EUT	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No such devices within the EUT	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources	No multiple power sources.	N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements		P
M.2	Safety of batteries and their cells	Lithium cell is provided by IEC 62133	P
M.2.1	Requirements	Cells are approved	P
M.2.2	Compliance and test method (identify method) .. :	Checked by inspection and evaluation based on the relevant documents of cells.	P
M.3	Protection circuits	See below	P
M.3.1	Requirements	Considered	P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery	See Annex M table	P
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Excessive discharging rate for any battery	See Annex M table	P
M.3.3	Compliance	Considered.	P
M.4	Additional safeguards for equipment containing secondary lithium battery		P
M.4.1	General		P
M.4.2	Charging safeguards	Considered	P
M.4.2.1	Charging operating limits	Considered	P
M.4.2.2a)	Charging voltage, current and temperature	See Annex M.4 table for details	—
M.4.2.2 b)	Single faults in charging circuitry	See Annex M.4 table for details	—
M.4.3	Fire Enclosure	The fire enclosure is made by V-0 class material	P
M.4.4	Endurance of equipment containing a secondary lithium battery	See below	P
M.4.4.2	Preparation	Two fully charged batteries has been prepared for test and reference	P
M.4.4.3	Drop and charge/discharge function tests	See below	P
	Drop	After the drop test, the voltage difference doesn't exceed 5% during 24 hours period	P
	Charge	After test, the charge function is still operated	P
	Discharge	After test, the discharge function is still operated	P
M.4.4.4	Charge-discharge cycle test	Three complete discharge and charge cycles have been performed	P
M.4.4.5	Result of charge-discharge cycle test	No fire or explosion is occurred during the test	P
M.5	Risk of burn due to short circuit during carrying	See below	P
M.5.1	Requirement	Battery terminal has been protected by enclosure structure	P
M.5.2	Compliance and Test Method (Test of P.2.3)	The enclosure is provided against the entry of foreign objects	N/A
M.6	Prevention of short circuits and protection from other effects of electric current		P
M.6.1	Short circuits	Considered	P
M.6.1.1	General requirements	The external short circuit has been simulated, and no fire, explosion	P

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Clause	Requirement + Test	Result - Remark	Verdict
M.6.1.2	Test method to simulate an internal fault	The force internal short circuit test of cell have been evaluated according to IEC 62133 requirement	P
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)	The sample does not explode or emit molten material during all of the tests	P
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	The EUT is not such type equipment	N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)	Considered	P
N	ELECTROCHEMICAL POTENTIALS		P
	Metal(s) used	Compliance	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See below	P
P.2.2	Safeguards against entry of foreign object	See below	P
	Location and Dimensions (mm)	No openings on EUT	—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment	No openings on EUT	N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)	No openings on EUT	N/A
P.3	Safeguards against spillage of internal liquids	No such liquids within the EUT	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing	(See Annex T)	N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources	See below	P
Q.1.1 a)	Inherently limited output		P
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	(See appended table Annex Q.1)	P
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
R.3	Test method Supply voltage (V) and short-circuit current (A)).		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements	See below	P
T.2	Steady force test, 10 N		N/A
T.3	Steady force test, 30 N	(See appended table T.3)	P
T.4	Steady force test, 100 N	(See appended table T.4)	P
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test	(See appended table T.8)	P
T.9	Impact Test (glass)	No such devices within the EUT	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas	No such devices within the EUT	N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....	(See Annex T)	N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
L2	interchangeable	interchangeable	4.7 μ H \pm 20%, 180 °C	Applicable parts of IEC 62368-1	Test in the appliance	
MOSFET (Q2)	CET-MOS Corp	CEM3119A	V _{DS} : 20V (N channel), -30V (P channel) , I _D : 9A (N channel), -8A (P channel)	Applicable parts of IEC 62368-1	Test in the appliance	
MOSFET (Q4,Q5)	Developer Microelectronics CO LTD	DP8205A	V _{DS} : 20V, I _D : 5A	Applicable parts of IEC 62368-1	Test in the appliance	
R12	interchangeable	interchangeable	0.022 Ω \pm 1%, 1/4W	Applicable parts of IEC 62368-1	Test in the appliance	
IC(U2, U3)	HYCON Technology Corporation	HY2113-CB1A	Overcharge detection voltage: 4.275 V \pm 0.05V, Overdischarge detection detection: 2.30 V \pm 0.1V	Applicable parts of IEC 62368-1	Test in the appliance	
MOSFET (Q8, Q9, Q10, Q11)	Developer Microelectronics CO LTD	DP8024	V _{DS} : 20V, I _D : 9.5A	Applicable parts of IEC 62368-1	Test in the appliance	
IC(U4)	HOLYTA	H266	VDD:- 0.3V~+6.5V	Applicable parts of IEC 62368-1	Test in the appliance	
NTC (Rt1)	DONGGUAN SENSICOM ELECTRONCS TECHNOLOGY co., ltd	SNS104	100K Ω at 25 °C	UL 1434	UL recognized	
Battery Cell	Jiangxi DBK Co., Ltd	1166110	Nominal voltage: 3.7V, 10000 mAh, 37 Wh. Li ion rechargeable cell	IEC 62133: 2012	CB/TUV	
Plastic Material List:						

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
PCB	GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD	ILM-R1	Min. V-0, 130°C	Applicable parts of IEC 60950-1, UL 94	UL recognized	
-Alt.	KINGBO ARD LAMINATES HOLDINGS LTD	KB-6160	Min. V-0, 130°C	Applicable parts of IEC 60950-1, UL 94	UL recognized	
-Alt.	JIANGSU SUNYUAN AEROSPACE MATERIAL CO.,LTD	V-66	94 V-0, 130°C	Applicable parts of IEC 60950-1, UL 94	UL recognized	
-Alt.	interchangeable	interchangeable	Min. V-1, 130°C	Applicable parts of IEC 62133, UL 94	UL recognized	
Plastic enclosure (top and bottom cover)	SABIC INNOVATIVE PLASTICS US L L C	C6200(GG)	V-0, 75 °C min. 1.5 mm thickness	Applicable parts of IEC 62133, UL 94	UL recognized	
Supplementary information:						
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.						
2) Description line content is optional. Main line description needs to clearly detail the component used for testing.						

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Clause	Requirement + Test	Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	TABLE: Stress Relief test		—
	Part	Material	Oven Temperature (°C)
4.8.4.3	TABLE: Battery replacement test		—
	Battery part no.:		—
	Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
		1	
		2	
		3	
		4	
		5	
		6	
		8	
		9	
		10	
4.8.4.4	TABLE: Drop test		—
	Impact Area	Drop Distance	Drop No.
			1
			2
			3
4.8.4.5	TABLE: Impact		—
	Impacts per surface	Surface tested	Impact energy (Nm)

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:				

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result			N/A
Test position		Surface tested	Force (N)	Duration force applied (s)
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE : Classification of electrical energy sources	N/A
------------	--	-----

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
			Normal			
			Abnormal			
			Single fault – SC/OC			

5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

Test Conditions:

1. Abnormal & Single fault conditions for No. 1 & No. 2 were evaluated at approved power supply.
2. Abnormal & Single fault conditions for No. 3 were evaluated at Annex Q. See Table Annex Q.1 for details.

Supplementary information: SC=Short Circuit, OC=Short Circuit

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IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements				P
	Supply voltage (V) :	5.25 Vdc (Charging with full discharge battery)	Supplied by full charged battery pack (O/P:2.4A)	Supplied by full charged battery pack (USB1+USB 2 O/P:2.4A)	—
	Ambient T _{min} (°C) :	40	40	40	—
	Ambient T _{max} (°C) :	40	40	40	—
	Tma (°C) :	40	40	40	—
Maximum measured temperature T of part/at:		T (°C)			Allowed T _{max} (°C)
Below values for T (°C) are re-calculated to 40 degree C from actual ambient respectively:					
PCB near MOSFET(Q2)		74.3	103.4	98.8	130
PCB between MOSFET (Q4 and Q5)		61.7	89.5	86.2	130
PCB near IC (U2)		63.3	95.8	90.6	130
PCB near IC (U3)		61.6	95.0	89.9	130
PCB near IC (U4)		52.4	59.7	57.0	130
PCB between MOSFET (Q8 and Q9)		64.6	103.9	98.1	130
PCB between MOSFET (Q10 and Q11)		62.6	97.5	92.1	130
PCB near L2		70.5	99.7	95.5	130
Cell body		44.1	50.8	50.7	100
Inside of plastic enclosure near cell		43.4	48.4	47.7	75
Inside of plastic enclosure near PCB (L2) inside		47.4	55.1	53.1	(For stress relief)
Below values for T (°C) are re-calculated to 25 degree C from actual ambient respectively:					
External plastic enclsure outside near cell		31.0	37.0	36.4	48
External plastic enclsure outside near MOSFET(Q2)		35.5	43.8	44.3	48
External plastic enclsure outside near (Q8 and Q9)		35.1	43.5	43.1	48
External plastic enclsure outside near MOSFET (Q10 and Q11)		34.7	42.5	42.7	48
External plastic enclsure outside near L2		39.5	49.9	49.0	48

Note: The temperature test result of accessible part can not comply with touch temperature limits TS1 (48 degree C) according to Table 38.

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P		
		Supply voltage (V) :	5.25 Vdc (Charging with full discharge battery)	Supplied by full charged battery pack (O/P:2.4A)	Supplied by full charged battery pack (USB1+USB 2 O/P:2.4A)	—		
		Ambient T _{min} (°C) :	40	40	40	—		
		Ambient T _{max} (°C) :	40	40	40	—		
		Tma (°C) :	40	40	40	—		
	Maximum measured temperature T of part/at:		T (°C)			Allowed T _{max} (°C)		
	Supplementary information:							
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
—		—	—	—	—	—	—	—
Supplementary information:								
Note 1: Tma should be considered as directed by applicable requirement								
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)								

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm)..... :			—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)	
supplementary information:			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm) : ≤ 2 mm				—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequenc y (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Supplementary information:							
Note 1: Only for frequency above 30 kHz							
Note 2: See table 5.4.2.4 if this is based on electric strength test							
Note 3: Provide Material Group							

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage				N/A
	Overvoltage Category (OV):				
	Pollution Degree:				
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Supplementary information:					

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Supplementary information:						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Supplementary information:				
This test was conducted on EUT with all sources of building-in power supply listed in table 4.1.2.				



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Clause	Requirement + Test	Result - Remark	Verdict

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information: X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						

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Clause	Requirement + Test	Result - Remark	Verdict

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Supplementary information:					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part			N/A
Supply voltage			—	
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)	
		1		
		2*		
		3		
		4		
		5		
		6		
		8		

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.



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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification					P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification	
A	Cells output Before PCB	Power (W) :	26.81	26.85	PS2	
		V _A (V) :	3.73	3.73		
		I _A (A) :	7.19	7.20		
B	USB output	Power (W) :	13.67	10.36	PS1	
		V _A (V) :	4.92	3.74		
		I _A (A) :	2.78	2.77		
C	USB output ¹⁾	Power (W) :	15.67	15.31	PS2	
		V _A (V) :	3.20	3.23		
		I _A (A) :	4.90	4.74		
D	USB output ²⁾	Power (W) :	10.15	9.92	PS1	
		V _A (V) :	3.59	3.61		
		I _A (A) :	2.83	2.75		
E	USB output ³⁾	Power (W) :	12.07	12.06	PS1	
		V _A (V) :	3.45	3.50		
		I _A (A) :	3.50	3.45		

Supplementary Information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

1. R12 short circuit
2. Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit
3. Q4, Pin 2, D - Pin 3, S2 short circuit



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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				N/A
Location		Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p × I _{rms})	Arcing PIS? Yes / No
Supplementary information: An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V _p) and normal operating condition rms current (I _{rms}) is greater than 15.					

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
Battery pack output	Normal	13.39	13.28	Yes	No
Battery pack output	Single Fault ¹⁾	20.96	13.75	Yes	Yes
Battery pack output	Single Fault ²⁾	13.76	13.54	Yes	No
Battery pack output	Single Fault ³⁾	11.61	11.61	Yes	No
<p>Supplementary Information:</p> <p>A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.</p> <p>If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.</p> <p>A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.</p> <p>1. R13 short circuit</p> <p>2. Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit</p> <p>3. Q4, Pin 2, D - Pin 3, S2 short circuit</p>					

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type.....:			—
Manufacturer			—
Cat no.:			—
Pressure (cold) (MPa).....:			MS_
Pressure (operating) (MPa)			MS_
Operating time (minutes)			—
Explosion method			—
Max particle length escaping enclosure (mm) .:			MS_
Max particle length beyond 1 m (mm).....:			MS_
Overall result			
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5	1.94	2	10.13	-	-	-	Empty battery pack charging only
Supplementary information: 1) The measured input current at rated voltage shall be. 110 % of rated current.							



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Clause	Requirement + Test					Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating ...						See appended table 4.1.2		—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank USB1 Output	O/L	—	5	—	—	K	Cell body= 35.1 °C, Ambient= 22.1°C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Output (USB1+US B2 port)	O/L	—	5	—	—	K	Cell body= 35.7 °C, Ambient= 22.1°C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Power bank USB1 Output	O/L	—	4	—	—	K	External enclosure near : Q2=43.2 °C, Q8&Q9=42.9 °C, Q10&Q11=35.4 °C, L2=46.3 °C, Ambient= 25 °C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output terminal + to -	S	—	24	—	—	K	Cell body=55.6°C, Ambient=55.3°C	Observation: Unit shut down. Temperature stabilized, Damaged:-
Power bank input	Normal Overcharge	5.25	14	—	—	K	Cell body= 25.3 °C, Ambient= 20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output (USB1 port)	Normal Excessive discharge	—	14	—	—	K	Cell body= 35.3 °C, Ambient= 22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information: Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.								

IEC62368_1B modified

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.4		TABLE: Fault condition tests						P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank input	Q2 Pin 3- Pin 5 short, Overcharge	5.25	14	—	—	K	Cell body=25.3°C, Ambient=20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank input	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge	5.25	14	—	—	K	Cell body= 25.7 °C, Ambient= 20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Excessive discharge	—	14	—	—	K	Cell body=35.9°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q4, Pin 2, D - Pin 3, S2 short, Excessive discharge	—	14	—	—	K	Cell body=36.6°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	R12 short, Excessive discharge	—	14	—	—	K	Cell body=35.8°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.4		TABLE: Fault condition tests (cont.)						P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank input	Q2 Pin 3- Pin 5 short, Overcharge	5.25	8	—	—	K	External enclosure near : Q2=35.1 °C, Q8&Q9=37.5 °C, Q10&Q11=31.7 °C, L2=35.8 °C, Ambient= 25 °C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank input	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge	5.25	8	—	—	K	External enclosure near : Q2=36.5 °C, Q8&Q9=38.4 °C, Q10&Q11=31.5 °C, L2=36.2 °C, Ambient= 25 °C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=47.1 °C, Q8&Q9=45.1 °C, Q10&Q11=40.3 °C, L2=47.5 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

IEC62368_1B modified

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IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
B.4	TABLE: Fault condition tests (cont.)							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank Output	Q4, Pin 2, D - Pin 3, S2 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=42.7 °C, Q8&Q9=44.8 °C, Q10&Q11=39.0 °C, L2=44.0 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	R12 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=47.0 °C, Q8&Q9=46.8 °C, Q10&Q11=40.5 °C, L2=44.2 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M	TABLE: Batteries								P
The tests of Annex M are applicable only when appropriate battery data is not available									—
Is it possible to install the battery in a reverse polarity position?						No. The reverse polarity installation is prevented by construction			—
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	—	—	—	5.25 Vdc, 1.93 A	5.25 Vdc, 2 A ¹⁾	2.4A	2.4 A ¹⁾	—	—
Max. current during fault condition	—	—	—	5.25 Vdc, 2 A	5.25 Vdc, 2 A ¹⁾	2.4A	2.4 A ¹⁾	—	—
Test results:						Appropriate battery date is available		Verdict	
- Chemical leaks						There was no chemical leaks		P	
- Explosion of the battery						The battery did not explode resulting in injury to a user		P	
- Emission of flame or expulsion of molten metal						There was no emission of flame or expulsion of molten metal outside the battery operated product		P	
- Electric strength tests of equipment after completion of tests								N/A	
Supplementary information:									
1) Considered for real time clock battery. Also see appended table B.3, B.4.									
2) Cell protected circuit diagram, please see the appendix 2.									

IEC62368_1B modified

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M.4		Table: Additional safeguards for equipment containing secondary lithium batteries			P
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
Cell No.1	Normal (charging)	4.12	1.34	27.2	No exceeding the max. specified charging voltage and current
	Abnormal (Overcharge)	4.12	1.34	25.3	No exceeding the max. specified charging voltage and current
	Single fault –SC/OC (Q2 Pin 3- Pin 5 short, Overcharge)	4.13	0	25.3	No exceeding the max. specified charging voltage and current
	Single fault –SC/OC (Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge)	4.13	1.44	25.7	No exceeding the max. specified charging voltage and current

Annex M.4		Table: Additional safeguards for equipment containing secondary lithium batteries			P
Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	
Power bank	-10	Stop charging and unit shut down	60	Stop charging and unit shut down	
Supplementary Information:					



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IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
USB1 port	Normal condition	5.16	2.77	≤ 8.0 A	10.36	≤ 100 VA
USB1 port	Single fault condition ((Q4, Pin 2, D - Pin 3, S2), short circuit)	5.16	3.45	≤ 8.0 A	12.06	≤ 100 VA
USB1 port	Single fault condition (Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit)	5.14	2.75	≤ 8.0 A	9.92	≤ 100 VA
USB1 port	Single fault condition (R12 short circuit)	5.13	4.74	≤ 8.0 A	15.31	≤ 100 VA
Supplementary Information: 1) Sc=Short circuit, Oc=Open circuit.						

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IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Enclosure	¹⁾	1.5	30 N	5 s	Intact
Enclosure	¹⁾	1.5	100 N	5 s	Intact
Supplementary information:					
1) See appended table 4.1.2.					

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					
1) See appended table 4.1.2.					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Enclosure	1)	1.5	1000	Intact	
Enclosure ³⁾	1)	1.5	1000	For M.4.4.3 drop: Measure Voltage before Test (V) d.c.:5.16 ; Measure Voltage during the following 24 hour period Test (V) d.c.:5.16 ²⁾ ; Not fire, explode, or leak	
Supplementary information:					
1) See appended table 4.1.2.					
2) The voltage difference shall not exceed 5%. (M.4.4.3)					
3) After 1 m drop, the charging/discharging circuit functions are still available operation and all safeguards are effective. (M.4.4.4)					

T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	C6200GG	1.5	70	7	Not defeat the safe guard function
Supplementary information:					

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List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or WMT/CTF stage 2 procedure has been used.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)			
Differences according to : EN 62368-1:2014			
Attachment Form No. : EU_GD_IEC62368_1B			
Attachment Originator : Intertek Semko AB			
Master Attachment : Date (2015-08)			
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	CENELEC COMMON MODIFICATIONS (EN)		—
1	NOTE Z1		N/A
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a) Included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A
5.4.2.3.2.4	Interconnection with external circuit		N/A
10.2.1	Additional requirements in 10.5.1		N/A
10.5.1	RS1 compliance measurement conditions		N/A
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N/A
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N/A
G.7.1	NOTE Z1		N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		—
4.1.15	Denmark, Finland, Norway and Sweden: Class I pluggable equipment type A marking	The EUT is a Class III equipment	N/A
4.7.3	United Kingdom: Torque test socket-outlet BS 1363, and the plug part BS 1363.		N/A
5.2.2.2	Denmark: Warning for high touchcurrent		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	Finland and Sweden: Separation of the telecommunication network from earth		N/A
5.5.2.1	Norway: Capacitors rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden: Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N/A
5.6.1	Denmark: Protection for pluggable equipment type A; integral part of the equipment	The EUT is a Class III equipment	N/A
5.6.4.2.1	Ireland and United Kingdom: The protective current rating is taken to be 13 A		N/A
5.6.5.1	Ireland and United Kingdom: Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N/A
5.7.5	Denmark: The installation instruction affixed to the equipment if high protective conductor current		N/A
5.7.6.1	Norway and Sweden: Television distribution system isolation text in user manual		N/A
5.7.6.2	Denmark: Warning for high touch current		N/A
B.3.1 and B.4	Ireland and United Kingdom: Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Denmark: Appliances rated ≤ 13 A provided with a plug according to DS 60884-2-D1:2011.		N/A
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N/A
	If a single-phase equipment having rated >13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N/A
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.		N/A
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N/A
	Mains socket-outlets with earth in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a		N/A
G.4.2	United Kingdom: The plug part of direct plug-in equipment assessed to BS 1363		N/A
G.7.1	United Kingdom: Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N/A
G.7.1	Ireland: Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N/A
G.7.2	Ireland and United Kingdom: A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		—
10.5.2	Germany: Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N/A
F.1	Italy: The power consumption in Watts (W) indicated on TV receiver and in instruction for use		N/A
	TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.		N/A
	Marking for controls and terminals in Italian language.		N/A
	Conformity declaration according to the above requirements in the instruction manual		N/A
	First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed. U.S.A. NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to	CSA/UL 62368-1:2014
Attachment Form No.	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
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Clause	Requirement + Test	Result - Remark	Verdict
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		P
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment	The EUT is a Class III equipment	N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex M	Battery packs for stationary applications comply with special component requirements.		P
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.		N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		N/A
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.		N/A



Total Quality. Assured.

Appendix 1

Page 12 of 12

Report No. 170800124TWN-001

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A



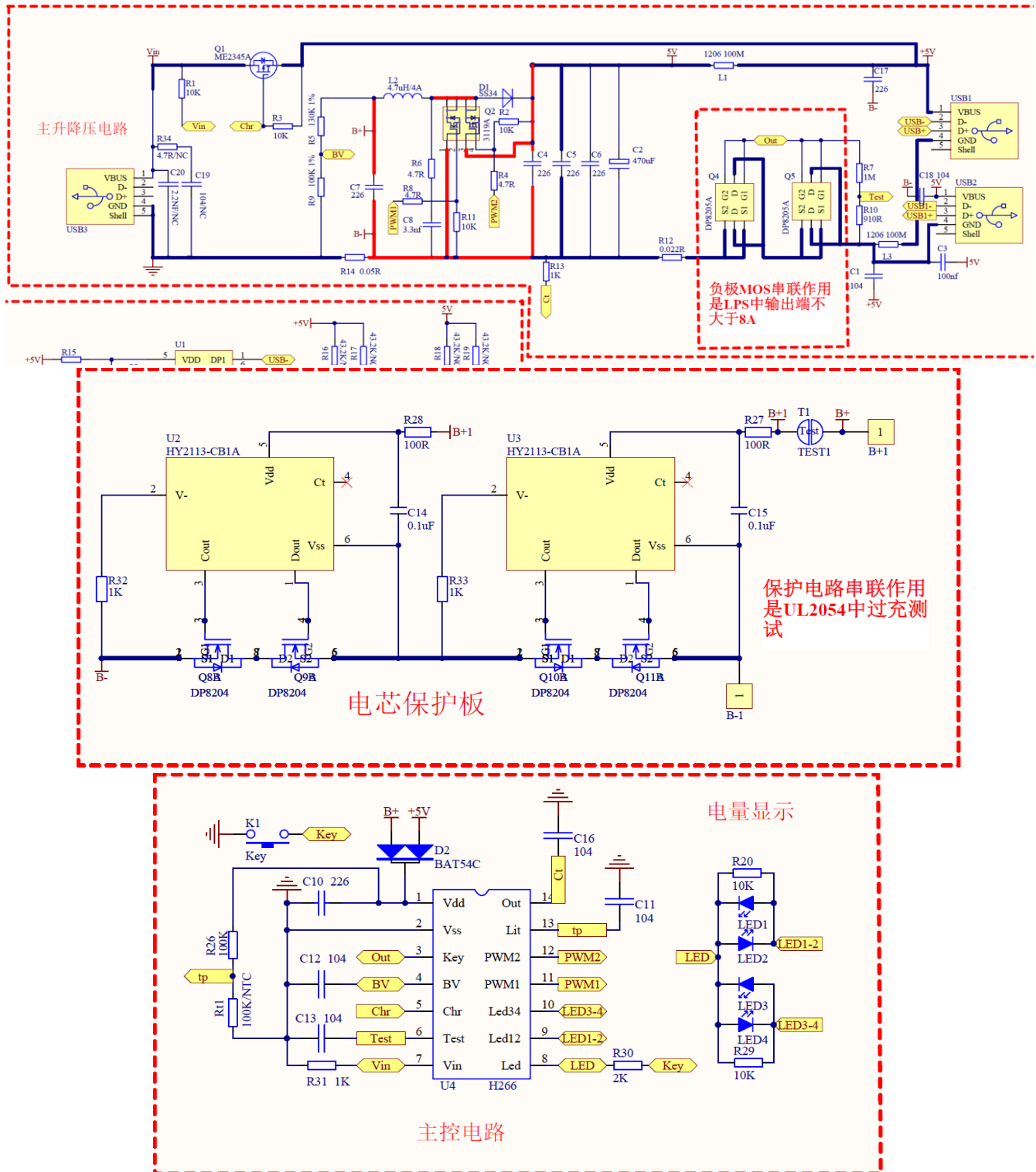
Total Quality. Assured.

Appendix 2
Circuit and Layout drawing

Page 1 of 2

Report No. 170800124TWN-001

Circuit





Photos

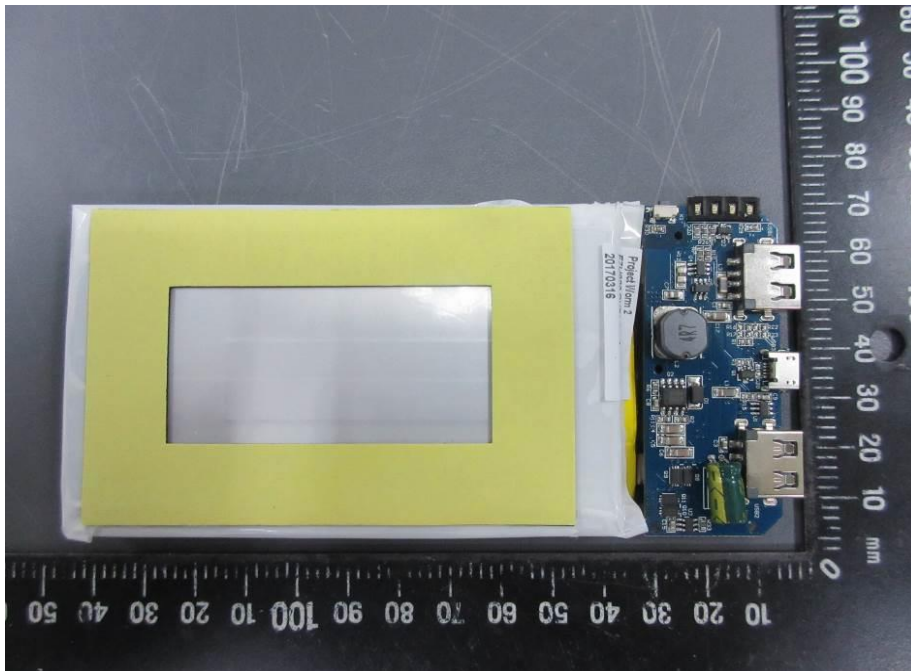
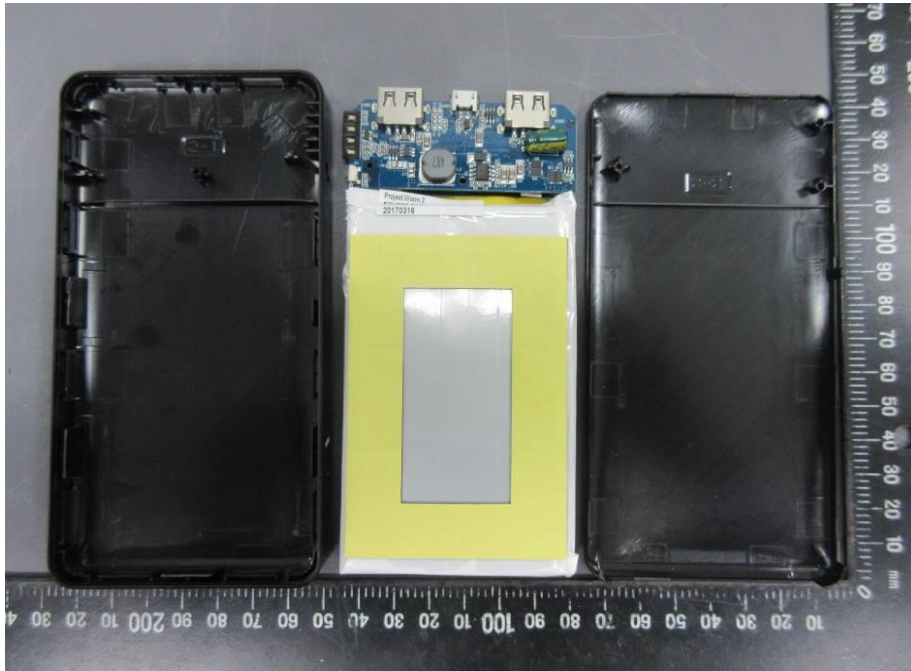
Page 1 of 4

Report No. 170800124TWN-001

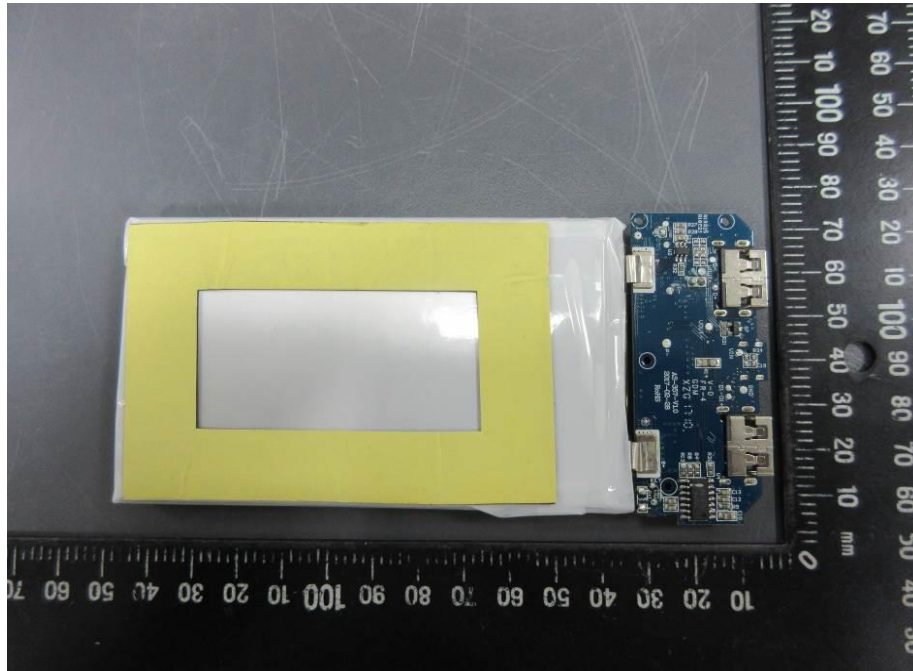
External view of EUT



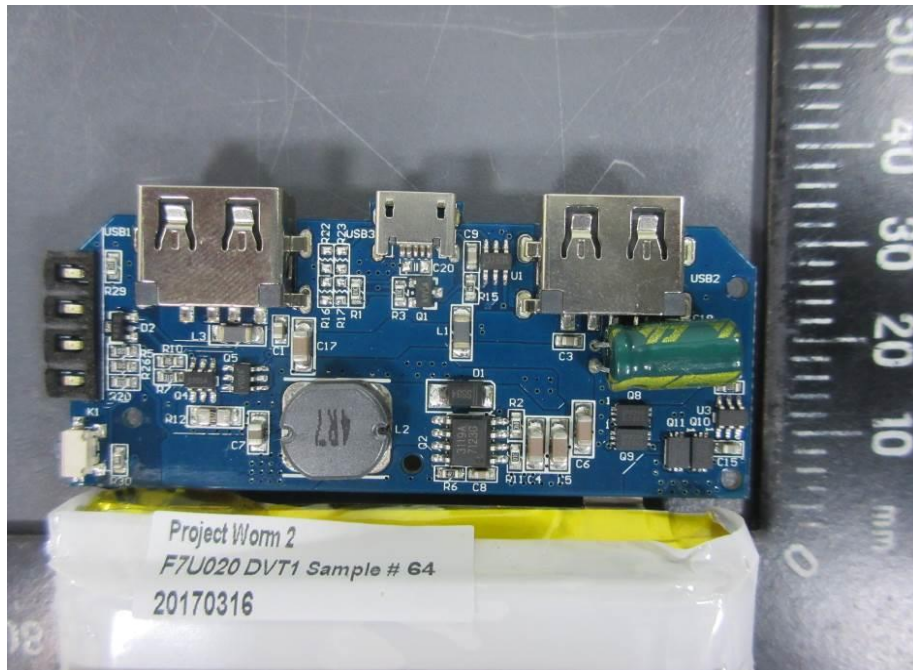
Internal view of EUT



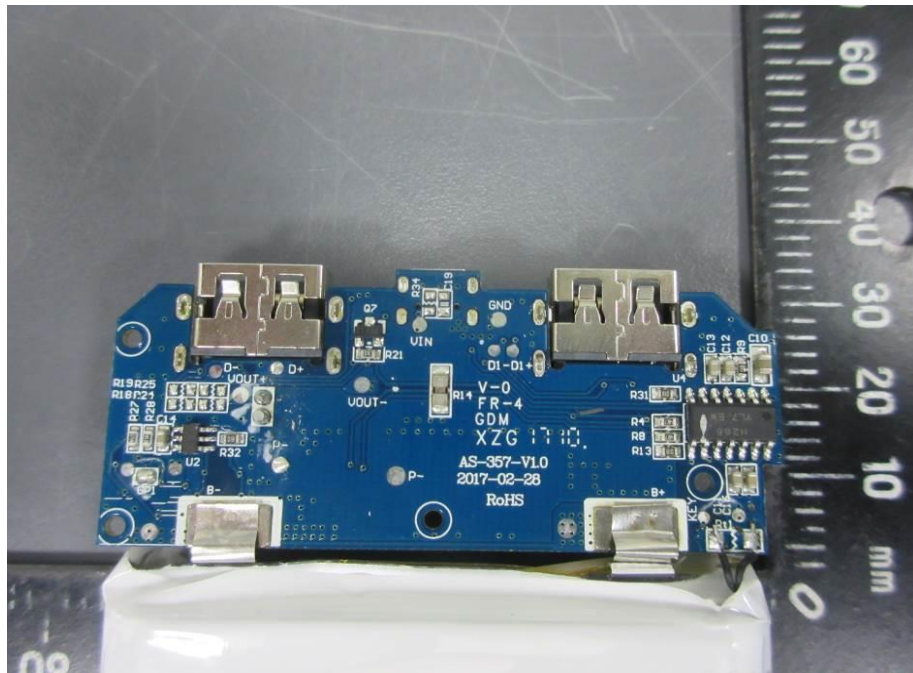
Internal view of EUT



Top view of PCB



Bottom view of PCB



From: Nick Kalra
Sent: Wednesday, December 20, 2017 11:55 AM PST
To: Andrew Camba
CC: Norbert von Boode
Subject: Re: Urgent Battery Enquiry

Sorry for the confusion on the silkscreen of the power pack.

Belkin promise is to deliver quality products by make sure the power packs are safe. One way we do this is that we test our products at a higher than minimal standards. To do the testing, we use 3rd party labs to test our battery packs at maximal conditions which is rate capacity listed on the power pack.

However, the actual capacity of the battery cells is what is advertised (ie 5000 mAh for 5000 mAh, 10000 mAh for 10000 mAh, 15000 to 15000 mAh).

From: Andrew Camba
Sent: Wednesday, December 20, 2017 10:01:35 AM
To: Nick Kalra
Cc: Norbert von Boode
Subject: Fwd: Urgent Battery Enquiry

Pls review, update, wordsmith- positive messaging/spin

From: Jamie Laing-Reece
Sent: Tuesday, December 19, 2017 8:01:03 PM
To: Josh Caulfield; Andrew Camba
Subject: RE: Urgent Battery Enquiry

Hi guys,

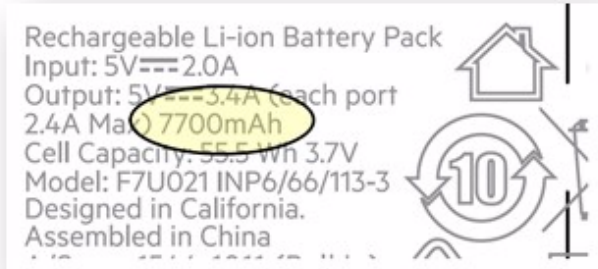
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Just wanted to see if you think this is an acceptable explanation to share with the customer?
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To help explain the silkscreen on Pocket Power, there may be confusion on the product markings. Belkin products are tested to a higher standard than our competitors. We use 3rd party labs that test to standards for all the regions that Belkin sells products into. In some cases, the regions (such as S. Korea and Taiwan), require that power bank (battery pack) products are marked with the measured capacity under full-rated load (and we cannot mark with the actual capacity of the lithium cells). The conflict is this number does not align with the actual capacity of the lithium cells that are built into the power bank (battery pack). The concern that the measured capacity under full-rated load is significantly different than the actual capacity of the lithium cells is a matter of efficiency. For example, if you were to drive your car at full-speed (pedal to floor), your gas efficiency in your automobile would be less than

typical driving conditions. The 3rd party test labs will test the products under this maximum condition whereas the actual use case would provide better numbers.

Sample Image (Silkscreen F7U021 15Ah).



Sample Image (Actual Product Showing QTY 3 5Ah cells = 15Ah).



From: Josh Caulfield
Sent: Wednesday, 20 December 2017 12:41 PM
To: Jamie Laing-Reece <Jamie.Laing-Reece@belkin.com>
Subject: Fwd: Urgent Battery Enquiry

Hi JLR

Can you send Drew the pictures?

Begin forwarded message:

From: Andrew Camba <Andrew.Camba@belkin.com>
Date: 20 December 2017 at 2:17:42 pm NZDT
To: Josh Caulfield <Josh.Caulfield@belkin.com>
Subject: Re: Urgent Battery Enquiry

Thanks Josh- do you guys have photos by chance?
I'll follow-up with them. Ugh.

From: Josh Caulfield <Josh.Caulfield@belkin.com>
Date: Tuesday, December 19, 2017 at 5:08 PM
To: Andrew Camba <Andrew.Camba@belkin.com>
Subject: Fwd: Urgent Battery Enquiry

Hi Drew

Looping you in...jc

Begin forwarded message:

From: Jamie Laing-Reece <Jamie.Laing-Reece@belkin.com>
Date: 20 December 2017 at 1:51:53 pm NZDT
To: Nick Kalra <Nick.Kalra@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>, Josh Caulfield <Josh.Caulfield@belkin.com>
Subject: Urgent Battery Enquiry

Hi Nick,

JB HiFi have flagged that the 10K and 5K PP both say a different mAh on the physical product being 6070mAh and 2900mAh Respectively.

They have removed stock from the shop floor until we confirm why there is conflicting information around mAh.

Could you please provide me some clarity as to why it does have this lower mAh on the products compared to packaging? We could lose massive business if we can't rectify or clarify the situation ASAP.

I really appreciate your help.

Thanks

JAMIE LAING-REECE

Product Manager ANZ

Belkin Limited

Tuggerah Business Park

Unit E, 2 Reliance Drive

Tuggerah NSW 2259

O +61 2 4350 4640

M +61 431 332 514



From: Nick Kalra
Sent: Wednesday, December 20, 2017 12:25 PM PST
To: Andrew Camba
CC: Norbert von Boode
Subject: Re: Urgent Battery Enquiry

Please disregard previous email...still undergoing changes.

From: Nick Kalra
Sent: Wednesday, December 20, 2017 11:55:03 AM
To: Andrew Camba
Cc: Norbert von Boode
Subject: Re: Urgent Battery Enquiry

Sorry for the confusion on the silkscreen of the power pack.

Belkin promise is to deliver quality products by make sure the power packs are safe. One way we do this is that we test our products at a higher than minimal standards. To do the testing, we use 3rd party labs to test our battery packs at maximal conditions which is rate capacity listed on the power pack.

However, the actual capacity of the battery cells is what is advertised (ie 5000 mAh for 5000 mAh, 10000 mAh for 10000 mAh, 15000 to 15000 mAh).

From: Andrew Camba
Sent: Wednesday, December 20, 2017 10:01:35 AM
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Cc: Norbert von Boode
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Pls review, update, wordsmith- positive messaging/spin

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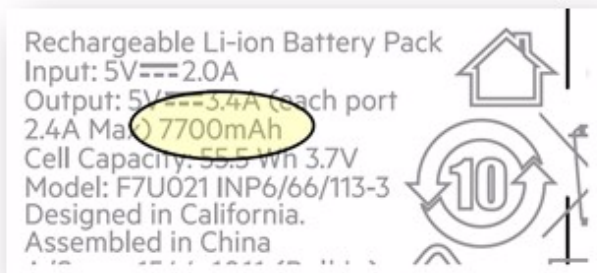
From: Nick Kalra
Sent: Wednesday, December 20, 2017 1:00 PM PST
To: Jen Warren
CC: Norbert von Boode
Subject: Rate Capacity- MPP

Hey Jen,

Following up on our conversation, below are the details of the situation as we discussed.

Please let me know if I need to clarify anything. Cheers. - Nick

Situation: We have two buyers, one from Australia and other from Dubia, have both stated that they are thinking of taking the Belkin power packs off the shelves. This is due to the print on the product that says a lower mAh (mAh is the unit measure of the power capacity a power pack can optimally carry) than what we have advertised on the product. For instance, the 15000 mAh power pack lists 7700 mAh on the fine print of the product as shown in the below screen shot.



To note, the advertised mAh on our power packs are correct as we do provide battery cells that equal to mAh we advertised (ie we do provide 3x5000mAh cells for a advertised 15000 mAh power pack.)

The lower mAh (ie the 7700 mAh listed on the 15000 mAh power pack) comes from a 3rd party lab that tests our products at maximal conditions. This is call the rated capacity. When tested under maximal conditions, there is a loss efficiency of the power transfer from the power pack to the device its charging. So, if compared to having two of the same device plugged into a power pack vs charging the same device 2x, there would be more power available on the latter option.

For certain regions, it is mandatory to list the rated capacity. However, the actual capacity will be higher for normal use cases.

Task: For the buyers, we need to craft a response on why there is a different capacity listed on the power pack. Can you assist on the development on the response so we can positively explain the difference to the buyers.

Action: Here is my draft response -

Belkin promise is to deliver quality products by make sure the power packs are safe and durable. One way we do this is that we test our products at a higher than minimal standards. To do the testing, we use 3rd party labs to test our battery packs at maximal conditions which

is rate capacity listed on the power pack. This is at worst-case situations where the product is maximally taxed so we know it will be safe in extreme situations.

Since we use a 3rd party lab, we list there findings on the power pack. However, the actual capacity is higher than the rated capacity listed on the product. For instance, if we break open any of our 15000 mAh Pocket Power 15k, you will see 3x5000 mAh battery cells.

Please let us know additional clarification or if there is anything else we can do.

From: Jen Warren
Sent: Wednesday, December 20, 2017 1:51 PM PST
To: Nick Kalra
CC: Norbert von Boode
Subject: Re: Rate Capacity- MPP

Can you provide me a little more background on what “maximal conditions” are? It’s not just simply charging two devices at the same time is it....? Would be nice to have something a bit more extreme to point to....so that we can differentiate between maximal conditions and normal use case conditions.

JEN WARREN

Director of Global Communications

Belkin International

12045 East Waterfront Drive

Playa Vista, CA 90094

O +1-310 751 2721

M +1-310 422 6588

T @jdubilicious



From: Nick Kalra <Nick.Kalra@belkin.com>
Date: Wednesday, December 20, 2017 at 1:00 PM
To: Jen Warren <Jen.Warren@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: Rate Capacity- MPP

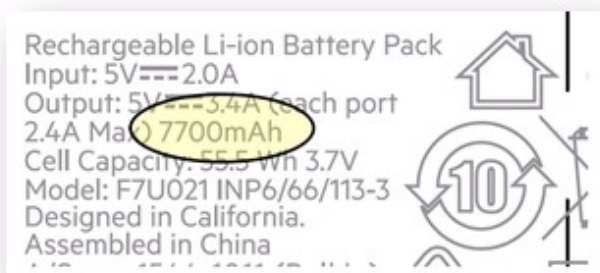
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Please let us know additional clarification or if there is anything else we can do.

From: Jen Warren
Sent: Wednesday, December 20, 2017 3:45 PM PST
To: Nick Kalra
CC: Norbert von Boode
Subject: Re: Rate Capacity- MPP

My suggestion and hopefully I've gotten the nuances right. If not I'm happy to revise this in collaboration with you. Have consumers complained? Or are the buyers just being proactively sensitive?

Here we go:

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are (legally?) obligated to communicate the product's full spectrum of capacity. Its maximum capacity is on package (10K, 15K) and its minimum capacity (7K, XX) is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

The Pocket Power 15K contains three powerful 5K mAh polymer battery cells and the Pocket Power 10K contains two 5K mAh polymer battery cells for efficient and lightweight charging capabilities. The beautiful slim design and lightweight components of this battery pack allows consumers the flexibility of staying charged, wherever they go.

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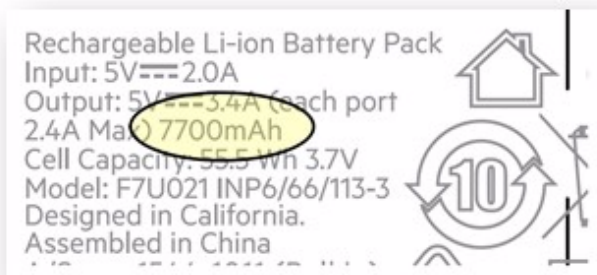
From: Nick Kalra <Nick.Kalra@belkin.com>
Date: Wednesday, December 20, 2017 at 1:00 PM
To: Jen Warren <Jen.Warren@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>
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From: Jen Warren
Sent: Wednesday, December 20, 2017 4:05 PM PST
To: Nick Kalra
CC: Norbert von Boode
Subject: Re: Rate Capacity- MPP

With minor tweaks below

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From: Nick Kalra <Nick.Kalra@belkin.com>

Date: Wednesday, December 20, 2017 at 1:00 PM

To: Jen Warren <Jen.Warren@belkin.com>

Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>

Subject: Rate Capacity- MPP

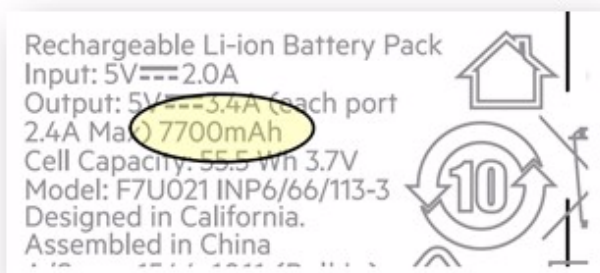
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Please let us know additional clarification or if there is anything else we can do.

From: Nick Kalra
Sent: Wednesday, December 20, 2017 5:35 PM PST
To: Jamie Laing-Reece
CC: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: Re: Urgent Battery Enquiry

Hey Jamie,

I worked with PR to re-craft a response for you which is below. I will talk to Regulatory next to talk about next steps and get back to you. Let me know if any questions.

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

From: Nick Kalra
Sent: Wednesday, December 20, 2017 9:57:31 AM
To: Jamie Laing-Reece
Cc: Norbert von Boode; Josh Caulfield
Subject: Re: Urgent Battery Enquiry

Hey Jamie,

Can you give me an update on your conversation? Cheers. - Nick

From: Nick Kalra
Sent: Tuesday, December 19, 2017 6:11:35 PM
To: Jamie Laing-Reece
Cc: Norbert von Boode; Josh Caulfield
Subject: Re: Urgent Battery Enquiry

Hey Jamie - Wanted to make sure that I gave you a complete explanation to the difference in mAh that was noted. Worked with PDM with below response.

The last picture is to show that there is 3x5k mAh cells for 15k, but we can break open any power pack to show that there is indeed the battery cells that match the packaged capacity.

Let me know how I can further help. Cheers. - Nick

Hi Nick,

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driving conditions. The 3rd party test labs will test the products under this maximum condition whereas the actual use case would provide better numbers.

Sample Image (Silkscreen F7U021 15Ah).



Sample Image (Actual Product Showing QTY 3 5Ah cells = 15Ah).



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Cc: Norbert von Boode; Josh Caulfield
Subject: Urgent Battery Enquiry

Hi Nick,

JB HiFi have flagged that the 10K and 5K PP both say a different mAh on the physical product being 6070mAh and 2900mAh Respectively.

They have removed stock from the shop floor until we confirm why there is conflicting information around mAh.

Could you please provide me some clarity as to why it does have this lower mAh on the products compared to packaging? We could lose massive business if we can't rectify or clarify the situation ASAP.

I really appreciate your help.

Thanks

JAMIE LAING-REECE

Product Manager ANZ

Belkin Limited

Tuggerah Business Park

Unit E, 2 Reliance Drive

Tuggerah NSW 2259

O +61 2 4350 4640

M +61 431 332 514



From: Jamie Laing-Reece
Sent: Wednesday, December 20, 2017 7:03 PM PST
To: Nick Kalra
CC: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: RE: Urgent Battery Enquiry

Thanks so much for this.

Am I okay to send this to the customer? Or should I await you talking to regulatory?

Thanks
Jamie

From: Nick Kalra
Sent: Thursday, 21 December 2017 12:35 PM
To: Jamie Laing-Reece <Jamie.Laing-Reece@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; Josh Caulfield <Josh.Caulfield@belkin.com>; Andrew Camba <Andrew.Camba@belkin.com>
Subject: Re: Urgent Battery Enquiry

Hey Jamie,

I worked with PR to re-craft a response for you which is below. I will talk to Regulatory next to talk about next steps and get back to you. Let me know if any questions.

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

From: Nick Kalra
Sent: Wednesday, December 20, 2017 9:57:31 AM
To: Jamie Laing-Reece
Cc: Norbert von Boode; Josh Caulfield
Subject: Re: Urgent Battery Enquiry

Hey Jamie,

Can you give me an update on your conversation? Cheers. - Nick

From: Nick Kalra
Sent: Tuesday, December 19, 2017 6:11:35 PM
To: Jamie Laing-Reece
Cc: Norbert von Boode; Josh Caulfield
Subject: Re: Urgent Battery Enquiry

Hey Jamie - Wanted to make sure that I gave you a complete explanation to the difference in mAh that was noted. Worked with PDM with below response.

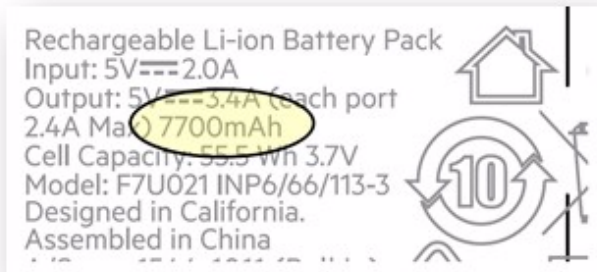
The last picture is to show that there is 3x5k mAh cells for 15k, but we can break open any power pack to show that there is indeed the battery cells that match the packaged capacity.

Let me know how I can further help. Cheers. - Nick

Hi Nick,

To help explain the silkscreen on Pocket Power, there may be confusion on the product markings. Belkin products are tested to a higher standard than our competitors. We use 3rd party labs that test to standards for all the regions that Belkin sells products into. In some cases, the regions (such as S. Korea and Taiwan), require that power bank (battery pack) products are marked with the measured capacity under full-rated load (and we cannot mark with the actual capacity of the lithium cells). The conflict is this number does not align with the actual capacity of the lithium cells that are built into the power bank (battery pack). The concern that the measured capacity under full-rated load is significantly different than the actual capacity of the lithium cells is a matter of efficiency. For example, if you were to drive your car at full-speed (pedal to floor), your gas efficiency in your automobile would be less than typical driving conditions. The 3rd party test labs will test the products under this maximum condition whereas the actual use case would provide better numbers.

Sample Image (Silkscreen F7U021 15Ah).



Sample Image (Actual Product Showing QTY 3 5Ah cells = 15Ah).



From: Jamie Laing-Reece
Sent: Tuesday, December 19, 2017 4:51:53 PM
To: Nick Kalra
Cc: Norbert von Boode; Josh Caulfield
Subject: Urgent Battery Enquiry

Hi Nick,

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JAMIE LAING-REECE

Product Manager ANZ

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Tuggerah Business Park

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Tuggerah NSW 2259

O +61 2 4350 4640

M +61 431 332 514



From: Nick Kalra
Sent: Wednesday, December 20, 2017 7:54 PM PST
To: Jamie Laing-Reece
CC: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: Re: Urgent Battery Enquiry

You are okay to send this. I have to talk to Rajesh about what are next steps, but don't know how much discussion we will need

The response should serve as a explanation in a positive tone. Hopefully it settles the concerns of the buyer as they understand that that the capacity advertised on the box is the actual capacity.

From: Jamie Laing-Reece
Sent: Wednesday, December 20, 2017 7:03:54 PM
To: Nick Kalra
Cc: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: RE: Urgent Battery Enquiry

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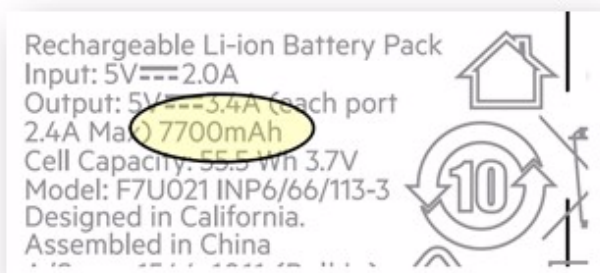
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I really appreciate your help.

Thanks

JAMIE LAING-REECE

Product Manager ANZ

Belkin Limited

Tuggerah Business Park

Unit E, 2 Reliance Drive

Tuggerah NSW 2259

O +61 2 4350 4640

M +61 431 332 514



From: Kevin Eisman
Sent: Tuesday, May 15, 2018 4:11 PM PDT
To: Rajesh Karki; Nick Kalra; Jenna Harling
CC: Mallory King; Michael Roitman; Paul Rivas
Subject: RE: Remove ETL/UL/BSMI
Attachments: 53229_8850bt00184_F8J201_F8M989_F8M992_F8M993_F7U003_F7U007_FCC_CE_For_Power_Packs_6000_10000_rev0325
2016_RK_edit.docx

Rajesh – Thank you!

Nick – FYI – Word doc is now updated and PR will be submitted.

Best Regards,

Kevin Eisman
Product Manager Coordinator

Belkin International, Inc.
12045 East Waterfront Drive
Playa Vista, CA 90094-2536

O: 310.751.2841
S: kevin.eisman@belkin

belkin.com

From: Rajesh Karki
Sent: Tuesday, May 15, 2018 4:01 PM
To: Kevin Eisman <Kevin.Eisman@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>
Cc: Mallory King <MalloryK@belkin.com>; Michael Roitman <Mike.Roitman@belkin.com>; Paul Rivas <Paul.Rivas@belkin.com>
Subject: RE: Remove ETL/UL/BSMI

Hi Kevin,
I have removed “Cell Capacity” also from the RC insert.

Thanks
Rajesh

From: Kevin Eisman
Sent: Tuesday, May 15, 2018 3:58 PM
To: Rajesh Karki <Rajesh.Karki@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>
Cc: Mallory King <MalloryK@belkin.com>; Michael Roitman <Mike.Roitman@belkin.com>; Paul Rivas <Paul.Rivas@belkin.com>
Subject: RE: Remove ETL/UL/BSMI

Rajesh,

Thank you for the feedback. I have removed all mAh from insert. Please confirm this attached is good to go and I will submit PR to Traffic.

Thank You,

Best Regards,

Kevin Eisman

Product Manager Coordinator

Belkin International, Inc.

12045 East Waterfront Drive

Playa Vista, CA 90094-2536

O: 310.751.2841

S: kevin.eisman@belkin

belkin.com

From: Rajesh Karki

Sent: Tuesday, May 15, 2018 3:36 PM

To: Kevin Eisman <Kevin.Eisman@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>

Cc: Mallory King <MalloryK@belkin.com>; Michael Roitman <Mike.Roitman@belkin.com>; Paul Rivas <Paul.Rivas@belkin.com>

Subject: RE: Remove ETL/UL/BSMI

No BSMI logo in the RC inset. I would advise to remove all the mAh capacity rating from the RC insert.

Thanks

Rajesh

From: Kevin Eisman

Sent: Tuesday, May 15, 2018 3:30 PM

To: Rajesh Karki <Rajesh.Karki@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>

Cc: Mallory King <MalloryK@belkin.com>; Michael Roitman <Mike.Roitman@belkin.com>; Paul Rivas <Paul.Rivas@belkin.com>

Subject: FW: Remove ETL/UL/BSMI

Hello Rajesh,

Just a reminder to review this RC INSERT. (See our notes below). We need to verify updated word doc before I can send PR to Traffic.

Thank You,

Best Regards,

Kevin Eisman

Product Manager Coordinator

Belkin International, Inc.

12045 East Waterfront Drive

Playa Vista, CA 90094-2536

O: 310.751.2841

S: kevin.eisman@belkin

belkin.com

From: Kevin Eisman

Sent: Tuesday, May 15, 2018 9:09 AM

To: Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>

Cc: Mallory King <MalloryK@belkin.com>; Rajesh Karki <Rajesh.Karki@belkin.com>

Subject: RE: Remove ETL/UL/BSMI

Rajesh,

Please see Nick's comments blow. I removed ETL/UL info. Is there BSMI on this document? I didn't see it.

Also, the specs show cell capacity. Just want to confirm if this stays on or gets removed?

Best Regards,

Kevin Eisman

Product Manager Coordinator

Belkin International, Inc.

12045 East Waterfront Drive

Playa Vista, CA 90094-2536

O: 310.751.2841

S: kevin.eisman@belkin

belkin.com

From: Nick Kalra

Sent: Tuesday, May 15, 2018 9:05 AM

To: Kevin Eisman <Kevin.Eisman@belkin.com>; Jenna Harling <jenna.harling@belkin.com>

Subject: Re: Remove ETL/UL/BSMI

- Mallory

It has the intertek logo on the RC insert, which is funny since it isn't on the package for this product.

Can we ask Rajesh if BSMI is on this document?

From: Mallory King
Sent: Tuesday, May 15, 2018 8:58:33 AM
To: Kevin Eisman; Nick Kalra; Jenna Harling
Subject: RE: Remove ETL/UL/BSMI

Here you go

From: Kevin Eisman
Sent: Tuesday, May 15, 2018 8:55 AM
To: Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>
Cc: Mallory King <MalloryK@belkin.com>
Subject: RE: Remove ETL/UL/BSMI

Hello Mallory,

Just to be clear, this is the insert I need the word doc for. Do we have the word doc for this?

Thank You.,

Best Regards,

Kevin Eisman
Product Manager Coordinator

Belkin International, Inc.
12045 East Waterfront Drive
Playa Vista, CA 90094-2536

O: 310.751.2841
S: kevin.eisman@belkin

belkin.com

From: Kevin Eisman
Sent: Monday, May 14, 2018 1:11 PM
To: Nick Kalra <Nick.Kalra@belkin.com>; Jenna Harling <jenna.harling@belkin.com>
Cc: Mallory King <MalloryK@belkin.com>
Subject: RE: Remove ETL/UL/BSMI

Hello Mallory,

We need to update the RC Statement for F8J201btSLV. I don't not see this statement on Sharepoint. Can you send to me?

Thank You,

Best Regards,

Kevin Eisman

Product Manager Coordinator

Belkin International, Inc.

12045 East Waterfront Drive
Playa Vista, CA 90094-2536

O: 310.751.2841

S: kevin.eisman@belkin

belkin.com

From: Nick Kalra

Sent: Monday, May 14, 2018 12:21 PM

To: Kevin Eisman <Kevin.Eisman@belkin.com>; Jenna Harling <jenna.harling@belkin.com>

Subject: Re: Remove ETL/UL/BSMI

Not sure why the power bank doesn't have it, but less work for us now!

From: Kevin Eisman

Sent: Monday, May 14, 2018 11:56:51 AM

To: Nick Kalra; Jenna Harling

Subject: RE: Remove ETL/UL/BSMI

Nick,

Attached is the most current packaging.

Best Regards,

Kevin Eisman

Product Manager Coordinator

Belkin International, Inc.

12045 East Waterfront Drive
Playa Vista, CA 90094-2536

O: 310.751.2841

S: kevin.eisman@belkin

belkin.com

From: Nick Kalra
Sent: Monday, May 14, 2018 11:46 AM
To: Kevin Eisman <Kevin.Eisman@belkin.com>; Jenna Harling <jenna.harling@belkin.com>
Subject: Re: Remove ETL/UL/BSMI

+Jenna

I don't see it either. Can we get the most current PDF of the package? I have seen packages, but I don't know if it is the most current version.

Thanks Kevin.

From: Kevin Eisman
Sent: Monday, May 14, 2018 11:39:10 AM
To: Nick Kalra
Subject: RE: Remove ETL/UL/BSMI

Nick,

I don't see any info n ETL/UL/BSMI in packaging.
https://belkinlive.sharepoint.com/:w:/t/icg/Eb8_JqKUyNxKkCZCiacpmKQB5D6jn5N0owVNsuGOlaQTbQ?e=9MK1dl



[SKU: F8J201btSLV](#)

Shared via SharePoint

Product Name:
Power Watch (6700mAh) Rev. C00 ...
SKU: F8J201btSLV

Product Name:
Power Watch (6700mAh) Rev. C00 ...
SKU: F8J201btSLV

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Product Name:

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Power Watch (6700mAh) Rev. C00 ...
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Product Name:
Power Watch (6700mAh) Rev. C00 ...
SKU: F8J201btSLV

Product Name:

Power Watch (6700mAh)

Retail Box P#: 8830bt23792 Rev. C00 ... Valet Charger Power Pack 6700 mAh for Apple Watch + iPhone ... Tested across multiple checkpoints to meet highest standards of quality and safety ...

The only thing I see is ETL in RC INSERT. Just want to confirm that I should only submit request for RC Insert?

Best Regards,

Kevin Eisman

Product Manager Coordinator

Belkin International, Inc.

12045 East Waterfront Drive

Playa Vista, CA 90094-2536

O: 310.751.2841

S: kevin.eisman@belkin

belkin.com

From: Nick Kalra

Sent: Monday, May 14, 2018 11:01 AM

To: Kevin Eisman <Kevin.Eisman@belkin.com>

Subject: Fw: Remove ETL/UL/BSMI

F8J201btSLV

From: Nick Kalra

Sent: Monday, May 14, 2018 10:59 AM

To: Mitchell Suckle

Cc: Rajesh Karki; Norbert von Boode; Jenna Harling

Subject: Re: Remove ETL/UL/BSMI

+Jenna for visibility on F8J201btSLV

Hey Mitch - Post a meeting with Rajesh on Friday, please find a reduce list below.

Also, can we add F8J201btSLV to the list.

Do you know when updated graphics will be done? Thank you. - Nick

1	F7U019	Pocket Power 5k	Remove UL/ETL and BSMI
2	F7U020	Pocket Power 10k	Remove UL/ETL and BSMI
3	F7U021	Pocket Power 15k	Remove UL/ETL and BSMI
4	F7U039	Pocket Power 10k (Dual Cell)	Remove UL/ETL and BSMI
5	F7U019btBLKBE	Pocket Power 5k w/ m-USB to USB-C Adapter	Remove UL/ETL and BSMI
6	F7U047	Pocket Power 10k w/QC 3.0	Remove UL/ETL and BSMI
7	F7U045	Lightning Power Bank 5k	Remove UL/ETL and BSMI
8	F7U046	Lightning Power Bank 10k	Remove UL/ETL and BSMI
9	F7U064	Lightning Power Bank 5k w/ 6" LTG Cable	Remove UL/ETL and BSMI
10	F7U065	Lightning Power Bank 10k w/ 6" LTG Cable	Remove UL/ETL and BSMI
11	F7U063	USB-C Power Bank, 20k mAh, PD 2.0 30W	Remove UL/ETL and BSMI
12	F8M980btBLK	MIXITTM Power Pack 2000	Remove ETL, Confirm No BSMI
13	F8M992	MIXITTM Rockstar 6600	Confirm - No BSMI or ETL/UL Certs
2	F8M993	MIXITTM Rockstar 10000	Confirm - No BSMI or ETL/UL Certs

From: Nick Kalra

Sent: Wednesday, May 9, 2018 1:38:32 PM

To: Mitchell Suckle

Cc: Rajesh Karki; Norbert von Boode

Subject: MPP: Remove ETL/UL/BSMI

Hey Mitch,

Following up on our conversation, we are removing certifications (ETL/UL/BSMI) on MPP product portfolio.

Below are the priority list of what products needs to have the graphics certs to be removed.

Additionally, we need to remove the rated capacity section off the power bank.

Please let me know if you need anymore information. Do you know what the timeline looks like to finish this task.

Thank you. - Nick

1	F7U019	Pocket Power 5k	Remove UL/ETL and BSMI
2	F7U020	Pocket Power 10k	Remove UL/ETL and BSMI
3	F7U021	Pocket Power 15k	Remove UL/ETL and BSMI
4	F7U039	Pocket Power 10k (Dual Cell)	Remove UL/ETL and BSMI
5	F7U019btBLKBE	Pocket Power 5k w/ m-USB to USB-C Adapter	Remove UL/ETL and BSMI
6	F7U047	Pocket Power 10k w/QC 3.0	Remove UL/ETL and BSMI
7	F7U045	Lightning Power Bank 5k	Remove UL/ETL and BSMI
8	F7U046	Lightning Power Bank 10k	Remove UL/ETL and BSMI
9	F7U064	Lightning Power Bank 5k w/ 6" LTG Cable	Remove UL/ETL and BSMI
10	F7U065	Lightning Power Bank 10k w/ 6" LTG Cable	Remove UL/ETL and BSMI
11	F7U063	USB-C Power Bank, 20k mAh, PD 2.0 30W	Remove UL/ETL and BSMI
12	F8M980btBLK	MIXIT ↑™ Power Pack 2000	Remove ETL, Confirm No BSMI
13	F8M992	MIXIT ↑™Rockstar 6600	Confirm - No BSMI or ETL/UL Certs
2	F8M993	MIXIT ↑™Rockstar 10000	Confirm - No BSMI or ETL/UL Certs

From: Mathew Small
Sent: Thursday, July 19, 2018 11:49 AM PDT
To: Jo Sturgess; Nick Kalra
CC: Norbert von Boode; David Chick
Subject: RE: UL/ETL Certification for Power Banks

Thanks Jo

From: Jo Sturgess
Sent: Tuesday, July 17, 2018 8:13 AM
To: Mathew Small <MathewS@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; David Chick <david.chick@belkin.com>
Subject: RE: UL/ETL Certification for Power Banks

Hi All

I have spoken with Stephen Walker [Senior Consultant] from NCEC today, he said they can see no issue with dropping any voluntary certification as long as we are covering all issues and legislation relating to transportation. If you require any further information please feel free to contact Stephen directly.

Stephen Walker dgsa@ricardo.com
Senior Consultant
National Chemical Emergency Centre (NCEC)
Thanks

Jo
JO STURGESS
Optimisation Analyst

Belkin International

O +44 (0) 1933 352271



From: Mathew Small
Sent: 14 May 2018 18:14
To: Nick Kalra <Nick.Kalra@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; David Chick <david.chick@belkin.com>; Jo Sturgess <Joanne.Sturgess@belkin.com>
Subject: RE: UL/ETL Certification for Power Banks

Jo/Dave,

Can you please arrange this.

Thanks,

Matt

From: Nick Kalra
Sent: Thursday, May 10, 2018 9:02 AM
To: Mathew Small <MathewS@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; David Chick <david.chick@belkin.com>; Jo Sturgess <Joanne.Sturgess@belkin.com>
Subject: Re: UL/ETL Certification for Power Banks

Hey Matt - Yeah, can we do a quick ask of Ricardo since this is a general question across all power banks. Thank you. - Nick

From: Mathew Small
Sent: Thursday, May 10, 2018 1:46:06 AM
To: Nick Kalra
Cc: Norbert von Boode; David Chick; Jo Sturgess
Subject: FW: UL/ETL Certification for Power Banks

Hi Nick,

I can't see any issues from my side, but not sure if global sales should be made aware. Do you think its worthwhile us also asking Ricardo if they see any issues with this.

Thanks,

Matt

From: Nick Kalra
Sent: Wednesday, May 9, 2018 9:52 PM
To: Mathew Small <MathewS@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: UL/ETL Certification for Power Banks

Hey Matt,

We would like to remove the UL/ETL certification from our power banks. This is something we have talk to regulatory about and they are okay on their side.

Belkin initially received this voluntary certification, which no specific country or customer requires, to leverage it as competitive advantage in quality over competitors. However, with the recent changes that mandates UL/ETL certified power banks to put both rated and cell

capacity on the product, we've been creating a confusion with two different capacities communicated and receiving multiple inquiries on this from different customers across the globe. The latest inquiry was from Rogers, who ceased sales on our power banks and we're currently addressing this.

Wanted to bring this to your attention to see if you had any feedback. Please let me know.
Thank you. - Nick

From: Vijendra Nalwad
Sent: Friday, May 11, 2018 5:53 PM PDT
To: Norbert von Boode
CC: Marco Peters; Melody Saffery; Andrew Camba; Nick Kalra; Rajesh Karki; Ernie Roberts; Stu Bush
Subject: Re: UL/ETL Certification for Power Banks

Hi Norbert,

I am okay with the proposed direction.

Thanks,

VJ.

Sent from my iPhone

On May 10, 2018, at 4:21 PM, Norbert von Boode <Norbert.vonBoode@belkin.com> wrote:

Hi VJ,

We have socialized this with legal as an on-going dialogue to address this issue with our customers and shared an aligned direction to remove the UL/ETL requirements. We also followed up with Matt Smalls and he doesn't see any issues from his side.

Thank you,
Norbert

From: Vijendra Nalwad <VJN@belkin.com>
Date: Wednesday, May 9, 2018 at 7:23 PM
To: Norbert von Boode <Norbert.vonBoode@belkin.com>
Cc: Marco Peters <marcop@belkin.com>, Melody Saffery <Melody.Tecson@belkin.com>, Andrew Camba <Andrew.Camba@belkin.com>, Nick Kalra <Nick.Kalra@belkin.com>, Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: RE: UL/ETL Certification for Power Banks

+Ernie and Stu.

Norbert,

Have we confirmed there are no risks from a transportation / logistics standpoint and legal stand point?

Thanks,

VJ.

From: Norbert von Boode
Sent: Wednesday, May 9, 2018 6:36 PM
To: Vijendra Nalwad <VJN@belkin.com>
Cc: Marco Peters <marcop@belkin.com>; Melody Saffery <Melody.Tecson@belkin.com>; Andrew Camba <Andrew.Camba@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>; Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: UL/ETL Certification for Power Banks

Hi VJ,

I heard Rajesh gave you a heads up on this, but we would like to move ahead and remove the UL/ETL certification from our power banks.

Belkin initially received this voluntary certification, which no specific country or customer requires, to leverage it as competitive advantage in quality over competitors. However, with the recent changes that mandates UL/ETL certified power banks to put both rated and cell capacity on the product, we've been creating a confusion with two different capacities communicated and receiving multiple inquiries on this from different customers across the globe. The latest inquiry was from Rogers, who ceased sales on our power banks and we're currently addressing this.

We would like to remove the UL/ETL certification requirement from our power banks, but continue testing internally based on UL/ETL standards to maintain our quality expectations. Attached are details we prepared for this week's escalation meeting, but unfortunately it didn't happen because of FIT's visit.

I wanted to reach out to you as the gatekeeper of quality to seek your recommendation. I talked with Melody as well about this and she is aligned.

Thank you,
Norbert

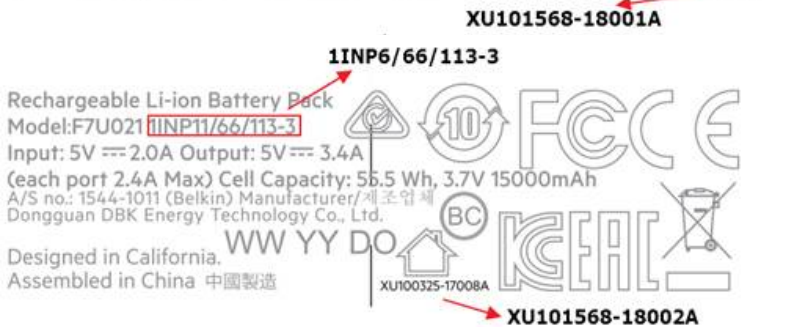
From: Jay Tu
Sent: Wednesday, October 3, 2018 1:02 AM PDT
To: Xiao, Claire
CC: Rajesh Karki; Nick Kalra; Norbert von Boode; Jenna Harling; Mitchell Suckle; Jenny Lai; Edward Leu
Subject: RE: Remove ETL/UL/BSMI
Attachments: IDA-00000_F7U019bt_worm5k_Artwork_revA20 laser etch outlined.pdf, IDA-00000_F7U020_worm10k_Artwork_revA19 laser etch outlined.pdf, IDA-00000_F7U021bt_worm15k_Artwork_revA19 laser etch outlined.pdf, IDA-00000_F7U039_worm10k_Artwork_revA05.pdf

Hi Claire,

For F7U019, F7U020, F7U021, F7U039, please see the newest ones I have.

For F7U019, F7U020, F7U021, please help to update KC number,
For F7U021, please update the code 1INP11/66/113-3 -> 1INP6/66/113-3

No.	Factory	Model name	Pre-KC certificate No.	KTC Project No.
1	Dongguan DBK Energy Technology Co., Ltd.	F7U019	XU101568-18003A	20180824-0092
2	Dongguan DBK Energy Technology Co., Ltd.	F7U020	XU101568-18001A	20180824-0099
3	Dongguan DBK Energy Technology Co., Ltd.	F7U021	XU101568-18002A	20180824-0101



Thank you.

Best Regards

Jay Tu
Regulatory Compliance Engineer

Belkin

O +1 310 633 9309*9142
M +886 925 445 446



From: Claire Park
Sent: Monday, May 21, 2018 3:23 PM
To: Rajesh Karki <Rajesh.Karki@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; Jenna Harling <jenna.harling@belkin.com>; Mitchell Suckle <MitchellS@belkin.com>
Subject: RE: Remove ETL/UL/BSMI

Hi Rajesh,

Please review attached one last time 😊 thank you

From: Rajesh Karki
Sent: Monday, May 21, 2018 10:46 AM
To: Nick Kalra <Nick.Kalra@belkin.com>; Claire Park <Claire.Park@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; Jenna Harling <jenna.harling@belkin.com>; Mitchell Suckle <MitchellS@belkin.com>
Subject: RE: Remove ETL/UL/BSMI

Please see below for my comments

F7U039

- 1) Remove 6070mAh
- 2) Add 10000mAh to the Cell Capacity

Rechargeable Li-ion Battery Pack

Model: F7U039 1INP6/66/110-2

Input: 5V \equiv 2.0A

Output : 5V \equiv 2.4A (each port 2.4 max, total 2 ports)

~~6070mAh~~ Cell Capacity: 37.0 Wh, 3.7V

Designed in California. Assembled in China



Add
10000mAh

F7U019

1) Replace 額定容量: ~~2900 mAh~~ with 5000mAh

Rechargeable Li-ion Battery Pack 可充式鋰離子行動電源

Model 型號: F7U019 1INP9/55/90 WW YY DO

Input 輸入: 5V \equiv 2.0A Output 輸出: 5V \equiv 2.4A

Cell Capacity: 18.5 Wh, 3.7V ~~額定容量: 2900 mAh~~ A/S no.: 1544-1011 (Belkin)

Manufacturer/ 제조업체 Dongguan DBK Energy Technology Co., Ltd.



Designed in California. Assembled in China 中國製造

XU100325-17004A

Replace with 5000mAh

F7U020

1) Remove 6070mAh and 額定容量: 6070mAh
2) Add 10000mAh to the Cell Capacity



F7U021

1) Replace 7700mAh with 15000mAh



Thanks
Rajesh

From: Nick Kalra
Sent: Monday, May 21, 2018 10:14 AM
To: Claire Park <Claire.Park@belkin.com>; Rajesh Karki <Rajesh.Karki@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; Jenna Harling <jenna.harling@belkin.com>; Mitchell Suckle <MitchellS@belkin.com>
Subject: Re: Remove ETL/UL/BSMI

Hey Rajesh,

Please let us know if you have any comments. Thank you. - Nick

From: Claire Park
Sent: Friday, May 18, 2018 10:10:06 AM
To: Nick Kalra; Rajesh Karki
Cc: Norbert von Boode; Jenna Harling; Mitchell Suckle
Subject: RE: Remove ETL/UL/BSMI

Hi Rajesh,

Attached is rev ____ worm artwork for review. Please provide us your with final approval if all info is correct on the attached. Thank you

ClaireP

From: Nick Kalra
Sent: Friday, May 18, 2018 9:20 AM
To: Mitchell Suckle <MitchellS@belkin.com>; Claire Park <Claire.Park@belkin.com>
Cc: Rajesh Karki <Rajesh.Karki@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>; Jenna Harling <jenna.harling@belkin.com>
Subject: Re: Remove ETL/UL/BSMI

Hey Mitch/Claire,

Can we have product graphic updates for at least F7U019, F7U020, and F7U021 today? There is a urgency to remove this bc at least one TELCO customer has quarantined our products.

Thank you. - Nick

From: Mitchell Suckle
Sent: Monday, May 14, 2018 11:03:34 AM
To: Nick Kalra; Claire Park
Cc: Rajesh Karki; Norbert von Boode; Jenna Harling
Subject: Re: Remove ETL/UL/BSMI

Adding Claire,

We should be able to have it completed by wed. It's not a lot of work, but we need to focus on another project today to move it along.

Thanks,

From: Nick Kalra <Nick.Kalra@belkin.com>
Date: Monday, May 14, 2018 at 10:59 AM
To: Mitchell Suckle <MitchellS@belkin.com>
Cc: Rajesh Karki <Rajesh.Karki@belkin.com>, Norbert von Boode <Norbert.vonBoode@belkin.com>, Jenna Harling <jenna.harling@belkin.com>
Subject: Re: Remove ETL/UL/BSMI

+Jenna for visibility on F8J201btSLV

Hey Mitch - Post a meeting with Rajesh on Friday, please find a reduce list below.

Also, can we add F8J201btSLV to the list.

Do you know when updated graphics will be done? Thank you. - Nick

1	F7U019	Pocket Power 5k	Remove UL/ETL and BSMI
2	F7U020	Pocket Power 10k	Remove UL/ETL and BSMI
3	F7U021	Pocket Power 15k	Remove UL/ETL and BSMI
4	F7U039	Pocket Power 10k (Dual Cell)	Remove UL/ETL and BSMI
5	F7U019btBLKBE	Pocket Power 5k w/ m-USB to USB-C Adapter	Remove UL/ETL and BSMI
6	F7U047	Pocket Power 10k w/QC 3.0	Remove UL/ETL and BSMI
7	F7U045	Lightning Power Bank 5k	Remove UL/ETL and BSMI
8	F7U046	Lightning Power Bank 10k	Remove UL/ETL and BSMI
9	F7U064	Lightning Power Bank 5k w/ 6" LTG Cable	Remove UL/ETL and BSMI
10	F7U065	Lightning Power Bank 10k w/ 6" LTG Cable	Remove UL/ETL and BSMI
11	F7U063	USB-C Power Bank, 20k mAh, PD 2.0 30W	Remove UL/ETL and BSMI
12	F8M980btBLK	MIXIT TM Power Pack 2000	Remove ETL, Confirm No BSMI
13	F8M992	MIXIT TM Rockstar 6600	Confirm - No BSMI or ETL/UL Certs
2	F8M993	MIXIT TM Rockstar 10000	Confirm - No BSMI or ETL/UL Certs

From: Nick Kalra
Sent: Wednesday, October 18, 2017 3:54 PM PDT
To: Norbert von Boode
Subject: Fw: Worm 1, 2 and 3 IEC 62368-1 test report
Attachments: 170800124TWN-001_CCA IEC 62368-1.pdf, 170800125TWN-001 IEC 62368-1.pdf, RE F7U021, status tracker from ITS.msg

For your records. Pocket Power temperature on new UL/IEC. Summarized results:
Pocket Power 5k; 6 degrees over
Pocket Power 10k: 2 degrees over
Pocket Power 15k: 5 degrees over
Rajesh is sending Power Packs 5k and 10k to different labs to see if there is variation in labs testing. Will get data on that in 2-3 weeks.

From: Rajesh Karki
Sent: Monday, October 16, 2017 7:23 PM
To: Nick Kalra
Subject: FW: Worm 1, 2 and 3 IEC 62368-1 test report

Attached is the test report is for Worm 1 and 2. Please see attached table 5.4.1.4, 6.3.2, 9.0, B.2.6 Temperature measurements.

For Worm 3 – See attached email.

Thanks
Rajesh

From: Jay Tu
Sent: Monday, October 16, 2017 7:16 PM
To: Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: RE: Worm 1, 2 and 3 IEC 62368-1 test report

Hi Rajesh,

Please see the attachment.

Thanks.

Best Regards

Jay Tu
Regulatory Compliance Engineer

Belkin

O 310 751 5559
M +886 925 445 446



From: Rajesh Karki
Sent: Tuesday, October 17, 2017 10:12 AM
To: Jay Tu <Jay.Tu@belkin.com>
Subject: Worm 1, 2 and 3 IEC 62368-1 test report

Hi Jay,
Can you please send me the test reports for IEC 62368-1 for Worm 1, 2 and 3.
I checked my emails and was unable to find it in my emails. We need to provide to PMs asap so
can you please check if you have it.
If not than I will checkup the backup of my old laptop tomorrow.

Thanks
RAJESH KARKI
Principal Regulatory Compliance Engineer

Belkin International
O [+1 310 751 2817](tel:+13107512817)
M [+1 949 735 9726](tel:+19497359726)
Skype: karki.rajesh



Test Report issued under the responsibility of:



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TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	170800124TWN-001
Date of issue	August 1, 2017
Total number of pages	64 pages test report + Appendix 1, 12 pages + Appendix 2, 2 pages + Photos, 4 pages.
Applicant's name	Belkin International Inc.
Address	12045 East Waterfront Drive, Playa Vista, CA 90094, USA
Test specification:	
Standard	IEC 62368-1:2014 (Second Edition) _ modified
Test procedure	Test Report
Non-standard test method	N/A
Test Report Form No.	-
Test Report Form(s) Originator	-
Master TRF	-
General disclaimer:	
The test results presented in this report relate only to the object tested.	
<small>Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: http://www.intertek-twn.com/terms/ . Intertek's responsibility and liability are limited to the terms and conditions of the agreement.</small>	
<small>This report is made solely on the basis of your instructions and / or information and materials supplied by you and provide no warranty on the tested sample(s) be truly representative of the sample source. The report is not intended to be a recommendation for any particular course of action, you are responsible for acting as you see fit on the basis of the report results. Intertek is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received and accepts no responsibility to any parties whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works. This report does not discharge or release you from your legal obligations and duties to any other person. You are the only one authorized to permit copying or distribution of this report (and then only in its entirety). Any such third parties to whom this report may be circulated rely on the content of the report solely at their own risk.</small>	



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Test Item description	Rechargeable Li-Ion Battery Pack
Trade Mark	belkin
Manufacturer	Belkin International Inc. 12045 East Waterfront Drive, Playa Vista, CA 90094, USA
Model/Type reference	F7U020
Ratings	Input: 5 Vdc, 2 A, Output: 5 Vdc, 2.4A, 6070 mAh (each port 2.4 A max) Class III

IEC62368_1B modified

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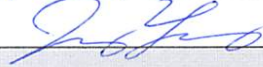
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Testing procedure and testing location:		
<input checked="" type="checkbox"/>	Testing Laboratory:	Intertek Testing Services Taiwan Ltd.
Testing location/ address		5F, No. 423, Ruiguang Rd., Neihu District, Taipei 114, Taiwan
Tested by (name + signature)..... :		Mark Chou 
Approved by (name + signature)		Jacky Yang 



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List of Attachments (including a total number of pages in each attachment):

Appendix 1 (12 pages) – National Differences
 Appendix 2 (2 pages) –Circuit and Layout drawing
 Photos (4 pages)

Summary of testing:**Tests performed (name of test and test clause):**

4.6.2 10 N steady force test
 5.4.1.4, 6.3.2, 9.0, B.2.6 Temperature measurements
 6.2.2 Electrical power sources (PS) measurements for classification
 6.2.3.2 Determination of potential ignition sources (resistive PIS)
 B.2.5 Input test
 B.3 Simulated abnormal operating conditions
 B.4 Simulated single fault conditions
 F.3.10 Marking durability test
 M.3, M.4 Batteries test
 Q.1 Limited power source test
 T.3 Steady force test – 30 N
 T.4 Steady force test – 100 N
 T.7 Drop test
 T.8 Stress relief Test

Testing location:

Intertek Testing Services Taiwan Ltd.



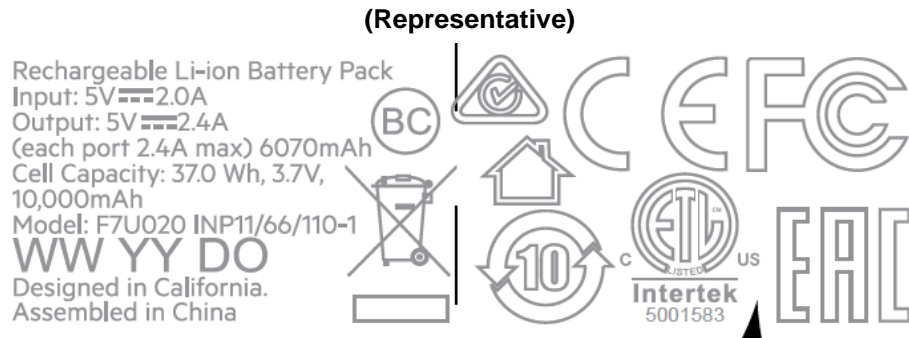
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Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

**Note:**

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.



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TEST ITEM PARTICULARS:	
Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection.....	<input type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input checked="" type="checkbox"/> External Circuit - not Mains connected - <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input checked="" type="checkbox"/> None
Supply Connection – Type	<input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: not directly connected to the mains
Considered current rating of protective device as part of building or equipment installation	N/A; Installation location: <input type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: Not direct connected to the mains
Class of equipment	<input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input checked="" type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	40 °C for charge conditions; 40 °C for discharge conditions
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP____
Power Systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V _{L-L}
Altitude during operation (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> 5000 m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Mass of equipment (g)	<input checked="" type="checkbox"/> Approx. 222.77 g

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POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
TESTING:	
Date of receipt of test item.....:	April 10, 2017
Date (s) of performance of tests	April 26, 2017 – July 4, 2017



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GENERAL REMARKS:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p> <p>This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.</p> <p>When determining the test conclusion, the Measurement Uncertainty of test has been considered.</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60060-2:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided :	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) :	1. SHENZHEN DBK ELECTRONICS CO., LTD 1st-5th floor Building 1, Jinyuan company Longhua Industrial Park, the north of Longguan Rd Hualian Community, Longhua Town, 518109 Baoan District, ShenZhen, Guangdong, China 518109



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GENERAL PRODUCT INFORMATION:**Product Description –**

The tested product is a Rechargeable Li-Ion Battery Pack for use in a general environment and the equipment is considered as transportable and Class III equipment.

The EUT has one micro USB input port and two USB output ports.

The Rechargeable Li-Ion Battery Pack, model F7U020, is equipped with one cell (1S1P) and the capacity is 6070 mAh.

The enclosures are fixed together by mechanical fixing.

The product was submitted and evaluated for the manufacturer's recommended maximum ambient (T_{mra}) 40°C for charge and discharge 40°C conditions.

The charging / discharging specification are listed as below:

Maximum Continue Charging Voltage/ Current: 5.25 Vdc / 2 A

Maximum Continue Discharge Current or Power: 2.4 A(USB1 output or USB 2 output or USB1+USB2 output)

Model Differences –

N/A

Additional application considerations – (Considerations used to test a component or sub-assembly) –

- normal conditions	N.C.	- single fault conditions	S.F.C
- functional insulation	FI	- basic insulation	BI
- double insulation	DI	- supplementary insulation	SI
- between parts of opposite polarity	BOP	- reinforced insulation	RI

Indicate used abbreviations (if any)



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ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
ES1	
Source of electrical energy	Corresponding classification (ES)
Cells output (1S1P)	ES1
Power bank USB output	ES1
+5 V dc micro USB input	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	
PS2	
Source of power or PIS	Corresponding classification (PS)
Cells output (1S1P)	PS2
Power bank USB output	PS2 (Comply with Clause Q.1)
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
Glycol	
Source of hazardous substances	Corresponding chemical
Rechargeable Li-polymer cell	Li-ion
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Equipment mass	MS1
Sharp edge and corner	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
TS1	
Source of thermal energy	Corresponding classification (TS)
External plastic enclosure	TS2
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
RS1	
Type of radiation	Corresponding classification (RS)
Indicating lights – LEDs	RS1

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ENERGY SOURCE DIAGRAM	
Indicate which energy sources are included in the energy source diagram. Insert diagram below	
<div><input checked="" type="checkbox"/> ES <input checked="" type="checkbox"/> PS <input type="checkbox"/> MS <input checked="" type="checkbox"/> TS <input type="checkbox"/> RS</div> <div><div><div>ES1</div></div><div><div>PS2</div></div><div><div>TS2</div></div></div>	



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OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES1: Battery circuit	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Plastic enclosure	PS2: <100 Watt circuit	Comply with Clause 6.3	Fire enclosure	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	Hazardous material (cell)	N/A	N/A	Enclosure
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS1: Mass ≤ 7 kg	N/A	N/A	N/A
Ordinary person	MS1: Sharp edges and corners	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS2: All accessible parts	Need to provide Instructional safeguard complies with 9.4.2	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: Indicating lights	N/A	N/A	N/A
Supplementary Information:				
1) See attached energy source diagram for additional details.				
2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	(see appended tables 4.1.2)	P
4.1.2	Use of components	Components, which are certified to IEC and/or national standards, are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment	P
4.1.3	Equipment design and construction	Considered	P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	All safeguards comply with the relevant robustness tests and requirement	P
4.4.4.2	Steady force tests.....:	(See Annex T.3, T.4, T.7 and T.8)	P
4.4.4.3	Drop tests.....:	(See Annex T.7)	P
4.4.4.4	Impact tests.....:		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:		N/A
4.4.4.6	Glass Impact tests.....:		N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:	No such type safeguard provided	N/A
4.4.4.9	Accessibility and safeguard effectiveness	During and after the tests, the EUT still complies with the relevant requirement of this standard	P
4.5	Explosion	No explosion occurs	P
4.6	Fixing of conductors	See below	P
4.6.1	Fix conductors not to defeat a safeguard	No conductors defeat a safeguard	P
4.6.2	10 N force test applied to.....:	Conductive tab terminals of internal cell	P
4.7	Equipment for direct insertion into mains socket - outlets	The EUT is not such type equipment	N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm).....:		N/A
4.8	Products containing coin/button cell batteries	No lithium coin or button cell batteries within the EUT	N/A
4.8.2	Instructional safeguard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object	No opening on the EUT	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications	The EUT is a Class III battery pack and considered as ES1 only	P
5.2.2	ES1, ES2 and ES3 limits	Considered	P
5.2.2.2	Steady-state voltage and current	The EUT is a Class III battery pack and considered as ES1 only	P
5.2.2.3	Capacitance limits		N/A
5.2.2.4	Single pulse limits		N/A
5.2.2.5	Limits for repetitive pulses		N/A
5.2.2.6	Ringling signals	No such ringing signal within the EUT	N/A
5.2.2.7	Audio signals	No audio amplifier within the EUT	N/A
5.3	Protection against electrical energy sources	See below	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	The EUT is a Class III equipment and considered as ES1 only. No safeguard is required.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V		N/A
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	No hygroscopic materials used as insulation. Only Functional Insulation is considered and complied with Annex B.4.4	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.3	Humidity conditioning	The EUT is a Class III equipment and considered as ES1 only	N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such device within the EUT	N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances	Only Functional Insulation is considered and complied with Annex B.4.4	N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage		N/A
	a) a.c. mains transient voltage		—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages		N/A
5.4.3	Creepage distances	Only Functional Insulation is considered and complied with Annex B.4.4	N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material	No such device within the EUT	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material	No such device within the EUT	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard	No such insulation of internal wire as part of supplementary insulation	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%).....		—
	Temperature (°C)		—
	Duration (h)		—
5.4.9	Electric strength test		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	Not connected to such external circuit	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.11	Insulation between external circuits and earthed circuitry		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General	See below	N/A
5.5.2	Capacitors and RC units	No such devices used as safeguard	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's	No such component within the EUT	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable	No antenna terminal within the EUT	N/A
5.6	Protective conductor		
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors	No power cord provided	N/A
	Protective earthing conductor size (mm^2)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm)		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	The EUT is a Class III equipment and considered as ES1 only.	N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)		—
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....		—
	Measured current (mA).....		—
	Instructional Safeguard.....		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	Not connected to a coaxial cable	N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current to external circuits		N/A
5.7.7	Summation of touch currents from external circuits	Not such device	N/A
	a) Equipment with earthed external circuits Measured current (mA).....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	See below	P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault	(See appended table 6.2.2)	P
6.2.2.4	PS1	(See appended table 6.2.2)	P
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources	See below	P
6.2.3.1	Arcing PIS	No arcing PIS within the EUT	N/A
6.2.3.2	Resistive PIS	The EUT is considered as a resistive PIS under single fault condition (see table 6.2.3.2). The fire enclosure is also provided.	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	No combustible materials on outside fire enclosure	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread (also see sub-clause 6.4.4, 6.4.5, 6.4.6)	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions		N/A
	Special conditions for temperature limited by fuse		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.4	Control of fire spread in PS1 circuits	No supplementary safeguards are needed	P
6.4.5	Control of fire spread in PS2 circuits	Considered	P
6.4.5.2	Supplementary safeguards	Components and materials have adequate flammability classification (See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	No PS3 circuits within the EUT	N/A
6.4.7	Separation of combustible materials from a PIS	See below	P
6.4.7.1	General	See below	P
6.4.7.2	Separation by distance	Considered and PCB is min. V-1.	P
6.4.7.3	Separation by a fire barrier	No such parts	N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier	No such parts	N/A
6.4.8.2.2	Requirements for a fire enclosure	Fire enclosure is provided	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	Considered	P
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings on the fire enclosure	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)	No such door or cover.	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	The fire enclosure is made of V-0 class material	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		P

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Clause	Requirement + Test	Result - Remark	Verdict
	External port limited to PS2 or complies with Clause Q.1	All I/O ports comply with Annex Q.1	P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances	Checked	P
7.3	Ozone exposure	No ozone produced.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries.....	(See Annex M)	P

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See below	P
8.2	Mechanical energy source classifications	Sharp edges and corners: MS1; Equipment mass: MS1	P
8.3	Safeguards against mechanical energy sources	Considered	P
8.4	Safeguards against parts with sharp edges and corners	The outer surface of the EUT is smoothed. No sharp edges and corners	P
8.4.1	Safeguards	Not required	N/A
8.5	Safeguards against moving parts		N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard	Not required	—
8.5.4	Special categories of equipment comprising moving parts	No such device within the EUT	N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps	No high pressure lamps.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....:		N/A
8.6	Stability	The mass of EUT is MS1	P
8.6.1	Product classification	No stability requirements	P
	Instructional Safeguard	Not required	—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)		N/A
	Position of feet or movable parts		—
8.7	Equipment mounted to wall or ceiling	The EUT is not such equipment	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force		N/A
8.8	Handles strength	No such device within the EUT	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No such device within the EUT	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	No such device within the EUT	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment	No such device	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable N		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No such device	N/A
	Button/Ball diameter (mm).....:		—

9	THERMAL BURN INJURY		—
9.2	Thermal energy source classifications	After reviewing, accessible parts are classified TS2, can't be classified TS1	—
9.3	Safeguard against thermal energy sources	After reviewing, accessible parts are classified TS2, can't be classified TS1	—
9.4	Requirements for safeguards		—
9.4.1	Equipment safeguard	(See appended table B.3 & B.4)	—
9.4.2	Instructional safeguard	Need to provide Instructional safeguard	—

10	RADIATION		P
10.2	Radiation energy source classification	See below	P
10.2.1	General classification	Indicating LEDs	P
10.3	Protection against laser radiation	The EUT does not produce laser radiation	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation	The EUT does not produce significant visible, infrared and UV radiation	N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Personal safeguard (PPE) instructional safeguard..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 . :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation..... :		N/A
10.4.1.g)	Materials resistant to degradation UV :		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions..... :		N/A
10.4.2	Instructional safeguard :		N/A
10.5	Protection against x-radiation	The EUT does not produce x-radiation	N/A
10.5.1	X- radiation energy source that exists equipment : Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation :		—
	Abnormal and single-fault condition :		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	No such device.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A) :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)	No such device within the EUT	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)..... :		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions	See below	P
B.2.1	General requirements..... :	(See appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	No such component within the EUT (See Annex E)	N/A
B.2.3	Supply voltage and tolerances	Input: 5 Vdc, 2 A	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :	See below	P
B.3.2	Covering of ventilation openings	No openings	N/A
B.3.3	D.C. mains polarity test	Not connected to DC mains	N/A
B.3.4	Setting of voltage selector	No setting of voltage selector within the EUT	N/A
B.3.5	Maximum load at output terminals	Considered	P
B.3.6	Reverse battery polarity	The reverse polarity installation is prevented by construction	P
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No audio amplifier within the EUT	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remain effective	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	Approved NTC device has been provided	P
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	See below	P

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the EUT	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	No such component intended for short time operation or intermittent operation	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions ... :	(See Annex M)	P
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	The EUT does not produce UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators	No such device within the EUT	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions	No audio amplifier within the EUT	N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions	(See appended table B.3 & B.4)	N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P



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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions – Language	English. However, the local language for each country that would be marketed shall be provided	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols are used according to IEC 60027-1	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphic symbols are used according to IEC 60417-1 or ISO 3864-2 or ISO 7000	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Marking is on enclosure which is not removable part	P
F.3.2	Equipment identification markings	See below	P
F.3.2.1	Manufacturer identification	belkin	—
F.3.2.2	Model identification	F7U020	—
F.3.3	Equipment rating markings	See below	P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....	===	—
F.3.3.4	Rated voltage	Input: 5 Vdc, 2 A, Output: 5 Vdc, 2.4 A	—
F.3.3.4	Rated frequency		—
F.3.3.6	Rated current or rated power	Input: 5 Vdc, 2 A, Output: 5 Vdc, 2.4 A	—
F.3.3.7	Equipment with multiple supply connections	The EUT is not such type equipment	N/A
F.3.4	Voltage setting device	Only one power supply voltage, no voltage setting within the EUT	N/A
F.3.5	Terminals and operating devices	See below	N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings.....	No such component within the EUT	N/A
F.3.5.2	Switch position identification marking	No such marking used	N/A
F.3.5.3	Replacement fuse identification and rating markings.....	No such component within the EUT	N/A
F.3.5.4	Replacement battery identification marking	Battery can't be replaced by user	N/A
F.3.5.5	Terminal marking location	No such component within the EUT	N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.6	Equipment markings related to equipment classification	See below	P
F.3.6.1	Class I Equipment	The EUT is a Class III equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal	Not permanently connected equipment	N/A
F.3.6.1.3	Protective bonding conductor terminals	Evaluated at approved power supply	N/A
F.3.6.2	Class II equipment (IEC60417-5172)	The EUT is a Class III equipment	N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking:	IPX0	—
F.3.8	External power supply output marking	Class III equipment	N/A
F.3.9	Durability, legibility and permanence of marking	The marking on the EUT is durable and legible	P
F.3.10	Test for permanence of markings	After rubbing test by water and petroleum spirit, the marking is still legible; it is not easily removed .	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking	The EUT is not such type equipment	N/A
	b) Instructions given for installation or initial use	Need to be further evaluated	—
	c) Equipment intended to be fastened in place	The EUT is not such type equipment	N/A
	d) Equipment intended for use only in restricted access area	The EUT is not such type equipment	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals	N/A
	f) Protective earthing employed as safeguard	Class III equipment	N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment	Need to be further evaluated	—
	i) Permanently connected equipment not provided with all-pole mains switch	The EUT is not a permanently connected equipment	N/A
	j) Replaceable components or modules providing safeguard function	No replaceable components or modules within EUT	N/A
F.5	Instructional safeguards		—

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	Need to be further evaluated	—
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements	No switch is used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	No such devices within the EUT	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs	No such devices within the EUT	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No such devices within the EUT	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors	Approved thermistor is used	P
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....		N/A
G.4	Connectors		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration		N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....		N/A
	Position.....		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....		—
G.5.3.3	Overload test		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General	No such wire within the EUT	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non- detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such device within the EUT	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A

IEC62368_1B modified



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		N/A
G.13.1	General requirements	No requirement of insulation on printed boards within the EUT	N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	(See G.13)	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such devices within the EUT	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A

IEC62368_1B modified



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such devices within the EUT	N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No such devices within the EUT	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No such devices within the EUT	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources	No multiple power sources.	N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements		P
M.2	Safety of batteries and their cells	Lithium cell is provided by IEC 62133	P
M.2.1	Requirements	Cells are approved	P
M.2.2	Compliance and test method (identify method) .. :	Checked by inspection and evaluation based on the relevant documents of cells.	P
M.3	Protection circuits	See below	P
M.3.1	Requirements	Considered	P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery	See Annex M table	P
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A

IEC62368_1B modified



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- Excessive discharging rate for any battery	See Annex M table	P
M.3.3	Compliance	Considered.	P
M.4	Additional safeguards for equipment containing secondary lithium battery		P
M.4.1	General		P
M.4.2	Charging safeguards	Considered	P
M.4.2.1	Charging operating limits	Considered	P
M.4.2.2a)	Charging voltage, current and temperature	See Annex M.4 table for details	—
M.4.2.2 b)	Single faults in charging circuitry	See Annex M.4 table for details	—
M.4.3	Fire Enclosure	The fire enclosure is made by V-0 class material	P
M.4.4	Endurance of equipment containing a secondary lithium battery	See below	P
M.4.4.2	Preparation	Two fully charged batteries has been prepared for test and reference	P
M.4.4.3	Drop and charge/discharge function tests	See below	P
	Drop	After the drop test, the voltage difference doesn't exceed 5% during 24 hours period	P
	Charge	After test, the charge function is still operated	P
	Discharge	After test, the discharge function is still operated	P
M.4.4.4	Charge-discharge cycle test	Three complete discharge and charge cycles have been performed	P
M.4.4.5	Result of charge-discharge cycle test	No fire or explosion is occurred during the test	P
M.5	Risk of burn due to short circuit during carrying	See below	P
M.5.1	Requirement	Battery terminal has been protected by enclosure structure	P
M.5.2	Compliance and Test Method (Test of P.2.3)	The enclosure is provided against the entry of foreign objects	N/A
M.6	Prevention of short circuits and protection from other effects of electric current		P
M.6.1	Short circuits	Considered	P
M.6.1.1	General requirements	The external short circuit has been simulated, and no fire, explosion	P

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
M.6.1.2	Test method to simulate an internal fault	The force internal short circuit test of cell have been evaluated according to IEC 62133 requirement	P
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)	The sample does not explode or emit molten material during all of the tests	P
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	The EUT is not such type equipment	N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)	Considered	P
N	ELECTROCHEMICAL POTENTIALS		P
	Metal(s) used	Compliance	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See below	P
P.2.2	Safeguards against entry of foreign object	See below	P
	Location and Dimensions (mm)	No openings on EUT	—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment	No openings on EUT	N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)	No openings on EUT	N/A
P.3	Safeguards against spillage of internal liquids	No such liquids within the EUT	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing	(See Annex T)	N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources	See below	P
Q.1.1 a)	Inherently limited output		P
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	(See appended table Annex Q.1)	P
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A

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IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.3	Test method Supply voltage (V) and short-circuit current (A)).		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements	See below	P
T.2	Steady force test, 10 N		N/A
T.3	Steady force test, 30 N	(See appended table T.3)	P
T.4	Steady force test, 100 N	(See appended table T.4)	P
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test	(See appended table T.8)	P
T.9	Impact Test (glass)	No such devices within the EUT	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas	No such devices within the EUT	N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....	(See Annex T)	N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
L2	interchangeable	interchangeable	4.7 μ H \pm 20%, 180 °C	Applicable parts of IEC 62368-1	Test in the appliance	
MOSFET (Q2)	CET-MOS Corp	CEM3119A	V _{DS} : 20V (N channel), -30V (P channel) , I _D : 9A (N channel), -8A (P channel)	Applicable parts of IEC 62368-1	Test in the appliance	
MOSFET (Q4,Q5)	Developer Microelectronics CO LTD	DP8205A	V _{DS} : 20V, I _D : 5A	Applicable parts of IEC 62368-1	Test in the appliance	
R12	interchangeable	interchangeable	0.022 Ω \pm 1%, 1/4W	Applicable parts of IEC 62368-1	Test in the appliance	
IC(U2, U3)	HYCON Technology Corporation	HY2113-CB1A	Overcharge detection voltage: 4.275 V \pm 0.05V, Overdischarge detection detection: 2.30 V \pm 0.1V	Applicable parts of IEC 62368-1	Test in the appliance	
MOSFET (Q8, Q9, Q10, Q11)	Developer Microelectronics CO LTD	DP8024	V _{DS} : 20V, I _D : 9.5A	Applicable parts of IEC 62368-1	Test in the appliance	
IC(U4)	HOLYTA	H266	VDD:- 0.3V~+6.5V	Applicable parts of IEC 62368-1	Test in the appliance	
NTC (Rt1)	DONGGUAN SENSICOM ELECTRONCS TECHNOLOGY co., ltd	SNS104	100K Ω at 25 °C	UL 1434	UL recognized	
Battery Cell	Jiangxi DBK Co., Ltd	1166110	Nominal voltage: 3.7V, 10000 mAh, 37 Wh. Li ion rechargeable cell	IEC 62133: 2012	CB/TUV	
Plastic Material List:						

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
PCB	GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD	ILM-R1	Min. V-0, 130°C	Applicable parts of IEC 60950-1, UL 94	UL recognized	
-Alt.	KINGBO ARD LAMINATES HOLDINGS LTD	KB-6160	Min. V-0, 130°C	Applicable parts of IEC 60950-1, UL 94	UL recognized	
-Alt.	JIANGSU SUNYUAN AEROSPACE MATERIAL CO.,LTD	V-66	94 V-0, 130°C	Applicable parts of IEC 60950-1, UL 94	UL recognized	
-Alt.	interchangeable	interchangeable	Min. V-1, 130°C	Applicable parts of IEC 62133, UL 94	UL recognized	
Plastic enclosure (top and bottom cover)	SABIC INNOVATIVE PLASTICS US L L C	C6200(GG)	V-0, 75 °C min. 1.5 mm thickness	Applicable parts of IEC 62133, UL 94	UL recognized	
Supplementary information:						
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.						
2) Description line content is optional. Main line description needs to clearly detail the component used for testing.						

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Clause	Requirement + Test	Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	TABLE: Stress Relief test		—
	Part	Material	Oven Temperature (°C)
4.8.4.3	TABLE: Battery replacement test		—
	Battery part no.:		—
	Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
		1	
		2	
		3	
		4	
		5	
		6	
		8	
		9	
		10	
4.8.4.4	TABLE: Drop test		—
	Impact Area	Drop Distance	Drop No.
			1
			2
			3
4.8.4.5	TABLE: Impact		—
	Impacts per surface	Surface tested	Impact energy (Nm)



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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
Supplementary information:				

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result			N/A
Test position		Surface tested	Force (N)	Duration force applied (s)
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE : Classification of electrical energy sources						N/A
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class	
				Capacitance, nF	Upk (V)		
			Normal				
			Abnormal				
			Single fault – SC/OC				
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	lpk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	lpk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				
Test Conditions:							
1. Abnormal & Single fault conditions for No. 1 & No. 2 were evaluated at approved power supply.							
2. Abnormal & Single fault conditions for No. 3 were evaluated at Annex Q. See Table Annex Q.1 for details.							
Supplementary information: SC=Short Circuit, OC=Short Circuit							



IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements				P
	Supply voltage (V) :	5.25 Vdc (Charging with full discharge battery)	Supplied by full charged battery pack (O/P:2.4A)	Supplied by full charged battery pack (USB1+USB 2 O/P:2.4A)	—
	Ambient T _{min} (°C) :	40	40	40	—
	Ambient T _{max} (°C) :	40	40	40	—
	Tma (°C) :	40	40	40	—
Maximum measured temperature T of part/at:		T (°C)			Allowed T _{max} (°C)
Below values for T (°C) are re-calculated to 40 degree C from actual ambient respectively:					
PCB near MOSFET(Q2)		74.3	103.4	98.8	130
PCB between MOSFET (Q4 and Q5)		61.7	89.5	86.2	130
PCB near IC (U2)		63.3	95.8	90.6	130
PCB near IC (U3)		61.6	95.0	89.9	130
PCB near IC (U4)		52.4	59.7	57.0	130
PCB between MOSFET (Q8 and Q9)		64.6	103.9	98.1	130
PCB between MOSFET (Q10 and Q11)		62.6	97.5	92.1	130
PCB near L2		70.5	99.7	95.5	130
Cell body		44.1	50.8	50.7	100
Inside of plastic enclosure near cell		43.4	48.4	47.7	75
Inside of plastic enclosure near PCB (L2) inside		47.4	55.1	53.1	(For stress relief)
Below values for T (°C) are re-calculated to 25 degree C from actual ambient respectively:					
External plastic enclsure outside near cell		31.0	37.0	36.4	48
External plastic enclsure outside near MOSFET(Q2)		35.5	43.8	44.3	48
External plastic enclsure outside near (Q8 and Q9)		35.1	43.5	43.1	48
External plastic enclsure outside near MOSFET (Q10 and Q11)		34.7	42.5	42.7	48
External plastic enclsure outside near L2		39.5	49.9	49.0	48

Note: The temperature test result of accessible part can not comply with touch temperature limits TS1 (48 degree C) according to Table 38.

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P		
	Supply voltage (V) :	5.25 Vdc (Charging with full discharge battery)	Supplied by full charged battery pack (O/P:2.4A)	Supplied by full charged battery pack (USB1+USB 2 O/P:2.4A)	—			
	Ambient T _{min} (°C) :	40	40	40	—			
	Ambient T _{max} (°C) :	40	40	40	—			
	T _{ma} (°C) :	40	40	40	—			
	Maximum measured temperature T of part/at:		T (°C)			Allowed T _{max} (°C)		
Supplementary information:								
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
—		—	—	—	—	—	—	—
Supplementary information:								
Note 1: T _{ma} should be considered as directed by applicable requirement								
Note 2: T _{ma} is not included in assessment of Touch Temperatures (Clause 9)								

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm)..... :			—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)	
supplementary information:			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm) :			≤ 2 mm	—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequenc y (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Supplementary information:							
Note 1: Only for frequency above 30 kHz							
Note 2: See table 5.4.2.4 if this is based on electric strength test							
Note 3: Provide Material Group							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage				N/A
	Overvoltage Category (OV):				
	Pollution Degree:				
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Supplementary information:					

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Supplementary information:						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Supplementary information:				
This test was conducted on EUT with all sources of building-in power supply listed in table 4.1.2.				



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Clause	Requirement + Test	Result - Remark	Verdict

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information: X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						



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Clause	Requirement + Test	Result - Remark	Verdict

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Supplementary information:					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part			N/A
Supply voltage			—	
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7		Touch current (mA)
		1		
		2*		
		3		
		4		
		5		
		6		
		8		

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.



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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification					P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification	
A	Cells output Before PCB	Power (W) :	26.81	26.85	PS2	
		V _A (V) :	3.73	3.73		
		I _A (A) :	7.19	7.20		
B	USB output	Power (W) :	13.67	10.36	PS1	
		V _A (V) :	4.92	3.74		
		I _A (A) :	2.78	2.77		
C	USB output ¹⁾	Power (W) :	15.67	15.31	PS2	
		V _A (V) :	3.20	3.23		
		I _A (A) :	4.90	4.74		
D	USB output ²⁾	Power (W) :	10.15	9.92	PS1	
		V _A (V) :	3.59	3.61		
		I _A (A) :	2.83	2.75		
E	USB output ³⁾	Power (W) :	12.07	12.06	PS1	
		V _A (V) :	3.45	3.50		
		I _A (A) :	3.50	3.45		

Supplementary Information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

1. R12 short circuit
2. Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit
3. Q4, Pin 2, D - Pin 3, S2 short circuit



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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				N/A
Location		Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p × I _{rms})	Arcing PIS? Yes / No

Supplementary information:
An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.



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Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
Battery pack output	Normal	13.39	13.28	Yes	No
Battery pack output	Single Fault ¹⁾	20.96	13.75	Yes	Yes
Battery pack output	Single Fault ²⁾	13.76	13.54	Yes	No
Battery pack output	Single Fault ³⁾	11.61	11.61	Yes	No
<p>Supplementary Information:</p> <p>A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.</p> <p>If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.</p> <p>A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.</p> <p>1. R13 short circuit</p> <p>2. Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit</p> <p>3. Q4, Pin 2, D - Pin 3, S2 short circuit</p>					

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type.....:			—
Manufacturer			—
Cat no.:			—
Pressure (cold) (MPa).....:			MS_
Pressure (operating) (MPa)			MS_
Operating time (minutes)			—
Explosion method			—
Max particle length escaping enclosure (mm) .:			MS_
Max particle length beyond 1 m (mm).....:			MS_
Overall result			
Supplementary information:			



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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5	1.94	2	10.13	-	-	-	Empty battery pack charging only
Supplementary information:							
1) The measured input current at rated voltage shall be. 110 % of rated current.							



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Clause	Requirement + Test					Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating ...						See appended table 4.1.2		—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank USB1 Output	O/L	—	5	—	—	K	Cell body= 35.1 °C, Ambient= 22.1°C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Output (USB1+US B2 port)	O/L	—	5	—	—	K	Cell body= 35.7 °C, Ambient= 22.1°C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Power bank USB1 Output	O/L	—	4	—	—	K	External enclosure near : Q2=43.2 °C, Q8&Q9=42.9 °C, Q10&Q11=35.4 °C, L2=46.3 °C, Ambient= 25 °C	Observation: Max discharge current 2.5 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output terminal + to -	S	—	24	—	—	K	Cell body=55.6°C, Ambient=55.3°C	Observation: Unit shut down. Temperature stabilized, Damaged:-
Power bank input	Normal Overcharge	5.25	14	—	—	K	Cell body= 25.3 °C, Ambient= 20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output (USB1 port)	Normal Excessive discharge	—	14	—	—	K	Cell body= 35.3 °C, Ambient= 22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information: Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.								

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Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Fault condition tests							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank input	Q2 Pin 3- Pin 5 short, Overcharge	5.25	14	—	—	K	Cell body=25.3°C, Ambient=20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank input	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge	5.25	14	—	—	K	Cell body= 25.7 °C, Ambient= 20.2°C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Excessive discharge	—	14	—	—	K	Cell body=35.9°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q4, Pin 2, D - Pin 3, S2 short, Excessive discharge	—	14	—	—	K	Cell body=36.6°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	R12 short, Excessive discharge	—	14	—	—	K	Cell body=35.8°C Ambient=22.7°C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								



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Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Fault condition tests (cont.)							P
Ambient temperature (°C)						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank input	Q2 Pin 3- Pin 5 short, Overcharge	5.25	8	—	—	K	External enclosure near : Q2=35.1 °C, Q8&Q9=37.5 °C, Q10&Q11=31.7 °C, L2=35.8 °C, Ambient= 25 °C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank input	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge	5.25	8	—	—	K	External enclosure near : Q2=36.5 °C, Q8&Q9=38.4 °C, Q10&Q11=31.5 °C, L2=36.2 °C, Ambient= 25 °C	Observation: Max charge current 2 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	Q10, S1 Pin 2-Q11, S2 Pin 6 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=47.1 °C, Q8&Q9=45.1 °C, Q10&Q11=40.3 °C, L2=47.5 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

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Clause	Requirement + Test					Result - Remark		Verdict
B.4	TABLE: Fault condition tests (cont.)							P
Ambient temperature (°C) :						25, if not stated below		—
Power source for EUT: Manufacturer, model/type, output rating . :						See appended table 4.1.2		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Power bank Output	Q4, Pin 2, D - Pin 3, S2 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=42.7 °C, Q8&Q9=44.8 °C, Q10&Q11=39.0 °C, L2=44.0 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Power bank Output	R12 short, Excessive discharge	—	4.5	—	—	K	External enclosure near : Q2=47.0 °C, Q8&Q9=46.8°C, Q10&Q11=40.5 °C, L2=44.2 °C, Ambient= 25 °C	Observation: Max discharge current 2.4 A. Temperature stabilized, No hazards, Damaged:-
Supplementary information:								

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M	TABLE: Batteries								P	
The tests of Annex M are applicable only when appropriate battery data is not available									—	
Is it possible to install the battery in a reverse polarity position?						No. The reverse polarity installation is prevented by construction			—	
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition	—	—	—	5.25 Vdc, 1.93 A	5.25 Vdc, 2 A ¹⁾	2.4A	2.4 A ¹⁾	—	—	
Max. current during fault condition	—	—	—	5.25 Vdc, 2 A	5.25 Vdc, 2 A ¹⁾	2.4A	2.4 A ¹⁾	—	—	
Test results:						Appropriate battery date is available		Verdict		
- Chemical leaks						There was no chemical leaks		P		
- Explosion of the battery						The battery did not explode resulting in injury to a user		P		
- Emission of flame or expulsion of molten metal						There was no emission of flame or expulsion of molten metal outside the battery operated product		P		
- Electric strength tests of equipment after completion of tests								N/A		
Supplementary information:										
1) Considered for real time clock battery. Also see appended table B.3, B.4.										
2) Cell protected circuit diagram, please see the appendix 2.										



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M.4		Table: Additional safeguards for equipment containing secondary lithium batteries			P
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
Cell No.1	Normal (charging)	4.12	1.34	27.2	No exceeding the max. specified charging voltage and current
	Abnormal (Overcharge)	4.12	1.34	25.3	No exceeding the max. specified charging voltage and current
	Single fault –SC/OC (Q2 Pin 3- Pin 5 short, Overcharge)	4.13	0	25.3	No exceeding the max. specified charging voltage and current
	Single fault –SC/OC (Q10, S1 Pin 2-Q11, S2 Pin 6 short, Overcharge)	4.13	1.44	25.7	No exceeding the max. specified charging voltage and current

Annex M.4		Table: Additional safeguards for equipment containing secondary lithium batteries			P
Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	
Power bank	-10	Stop charging and unit shut down	60	Stop charging and unit shut down	
Supplementary Information:					

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
USB1 port	Normal condition	5.16	2.77	≤ 8.0 A	10.36	≤ 100 VA
USB1 port	Single fault condition ((Q4, Pin 2, D - Pin 3, S2), short circuit)	5.16	3.45	≤ 8.0 A	12.06	≤ 100 VA
USB1 port	Single fault condition (Q10, S1 Pin 2-Q11, S2 Pin 6 short circuit)	5.14	2.75	≤ 8.0 A	9.92	≤ 100 VA
USB1 port	Single fault condition (R12 short circuit)	5.13	4.74	≤ 8.0 A	15.31	≤ 100 VA
Supplementary Information: 1) Sc=Short circuit, Oc=Open circuit.						

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Enclosure	¹⁾	1.5	30 N	5 s	Intact
Enclosure	¹⁾	1.5	100 N	5 s	Intact
Supplementary information:					
1) See appended table 4.1.2.					

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					
1) See appended table 4.1.2.					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Enclosure	1)	1.5	1000	Intact	
Enclosure ³⁾	1)	1.5	1000	For M.4.4.3 drop: Measure Voltage before Test (V) d.c.:5.16 ; Measure Voltage during the following 24 hour period Test (V) d.c.:5.16 ²⁾ ; Not fire, explode, or leak	
Supplementary information:					
1) See appended table 4.1.2.					
2) The voltage difference shall not exceed 5%. (M.4.4.3)					
3) After 1 m drop, the charging/discharging circuit functions are still available operation and all safeguards are effective. (M.4.4.4)					

T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	C6200GG	1.5	70	7	Not defeat the safe guard function
Supplementary information:					



List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or WMT/CTF stage 2 procedure has been used.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)			
Differences according to : EN 62368-1:2014			
Attachment Form No. : EU_GD_IEC62368_1B			
Attachment Originator : Intertek Semko AB			
Master Attachment : Date (2015-08)			
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	CENELEC COMMON MODIFICATIONS (EN)		—
1	NOTE Z1		N/A
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a) Included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A
5.4.2.3.2.4	Interconnection with external circuit		N/A
10.2.1	Additional requirements in 10.5.1		N/A
10.5.1	RS1 compliance measurement conditions		N/A
10.6.2.1	EN 71-1:2011, 4.20 and methods and distances		N/A
10.Z1	Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz		N/A
G.7.1	NOTE Z1		N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		—
4.1.15	Denmark, Finland, Norway and Sweden: Class I pluggable equipment type A marking	The EUT is a Class III equipment	N/A
4.7.3	United Kingdom: Torque test socket-outlet BS 1363, and the plug part BS 1363.		N/A
5.2.2.2	Denmark: Warning for high touchcurrent		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	Finland and Sweden: Separation of the telecommunication network from earth		N/A
5.5.2.1	Norway: Capacitors rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden: Resistors used as basic safeguard or bridging basic insulation comply with G.10.1 and G.10.2.		N/A
5.6.1	Denmark: Protection for pluggable equipment type A; integral part of the equipment	The EUT is a Class III equipment	N/A
5.6.4.2.1	Ireland and United Kingdom: The protective current rating is taken to be 13 A		N/A
5.6.5.1	Ireland and United Kingdom: Conductor sizes of flexible cords to be accepted by terminals for equipment rated 10 A to 13 A		N/A
5.7.5	Denmark: The installation instruction affixed to the equipment if high protective conductor current		N/A
5.7.6.1	Norway and Sweden: Television distribution system isolation text in user manual		N/A
5.7.6.2	Denmark: Warning for high touch current		N/A
B.3.1 and B.4	Ireland and United Kingdom: Tests conducted using an external miniature circuit breaker or protective devices included as an integral part of the direct plug-in equipment		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Denmark: Appliances rated ≤ 13 A provided with a plug according to DS 60884-2-D1:2011.		N/A
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.		N/A
	If a single-phase equipment having rated >13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.		N/A
	Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a.		N/A
	Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.		N/A
	Mains socket-outlets with earth in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a		N/A
G.4.2	United Kingdom: The plug part of direct plug-in equipment assessed to BS 1363		N/A
G.7.1	United Kingdom: Equipment fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768		N/A
G.7.1	Ireland: Apparatus provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use		N/A
G.7.2	Ireland and United Kingdom: A power supply cord for equipment which is rated over 10 A and up to and including 13 A.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		—
10.5.2	Germany: Cathode ray tube intended for the display of visual images, authorization or application of type approval and marking.		N/A
F.1	Italy: The power consumption in Watts (W) indicated on TV receiver and in instruction for use		N/A
	TV receivers provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language.		N/A
	Marking for controls and terminals in Italian language.		N/A
	Conformity declaration according to the above requirements in the instruction manual		N/A
	First importers of TV receivers manufactured outside EEC previous conformity certification to the Italian Post Ministry and Certification number on the backcover.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed. U.S.A. NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to	CSA/UL 62368-1:2014
Attachment Form No.	US&CA_ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
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Clause	Requirement + Test	Result - Remark	Verdict
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		P
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment	The EUT is a Class III equipment	N/A
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex G (G.7.5)	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V d.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex M	Battery packs for stationary applications comply with special component requirements.		P
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.		N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a min. flammability classification of V-1.		N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (F.3.3.3)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		N/A
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.		N/A



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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, complies with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A



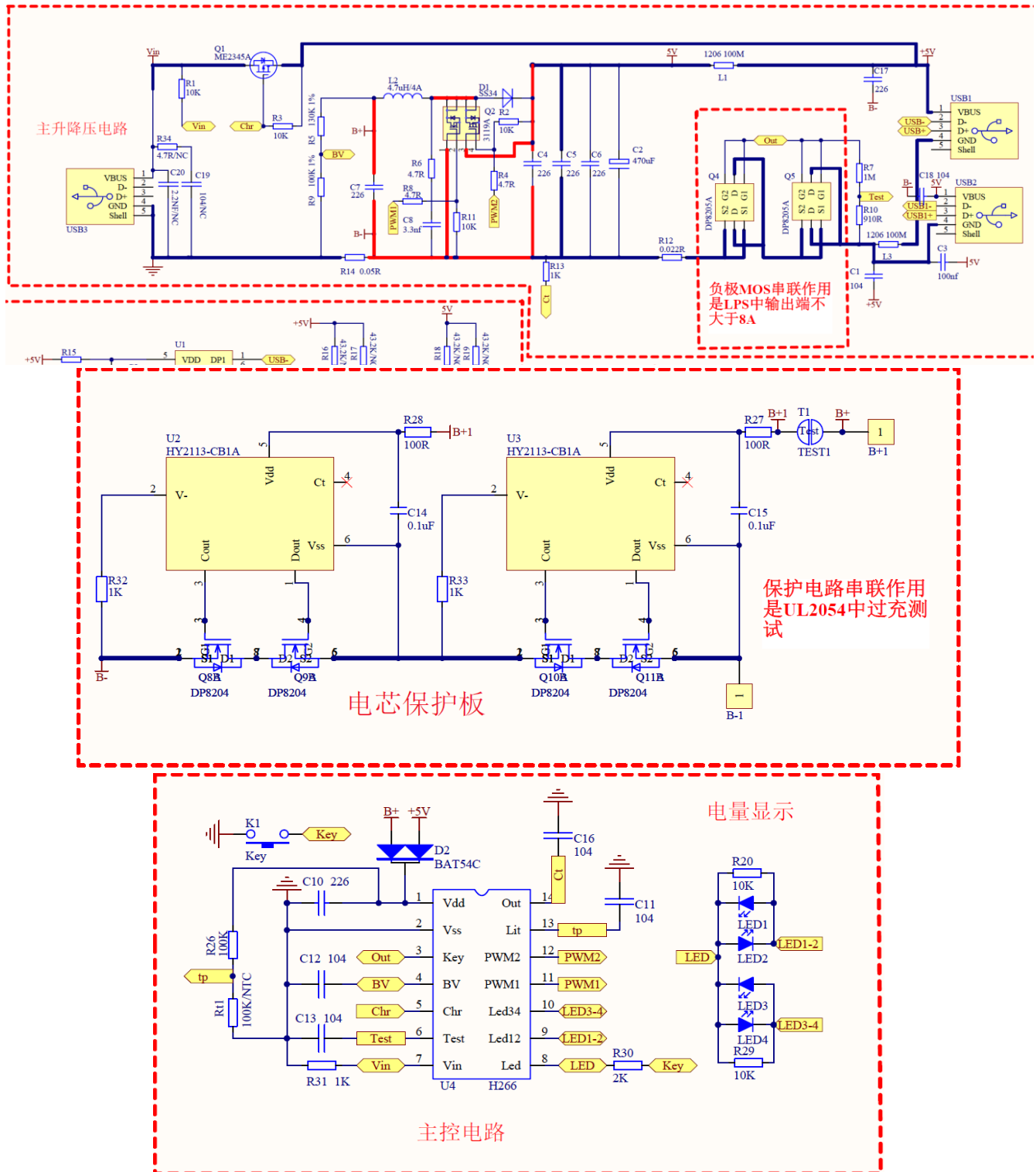
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Appendix 2
Circuit and Layout drawing

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Circuit





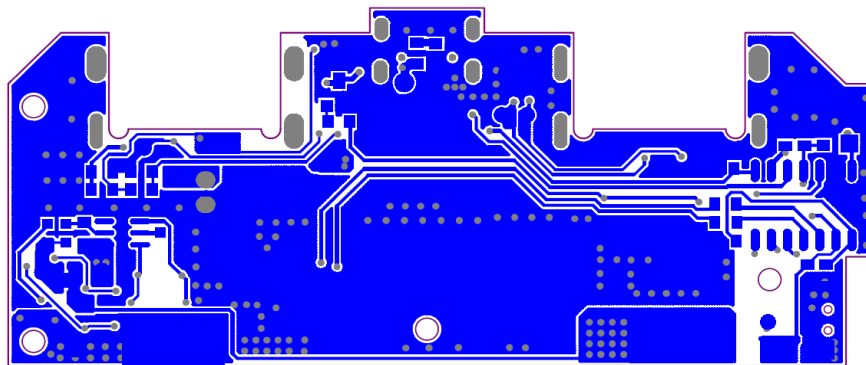
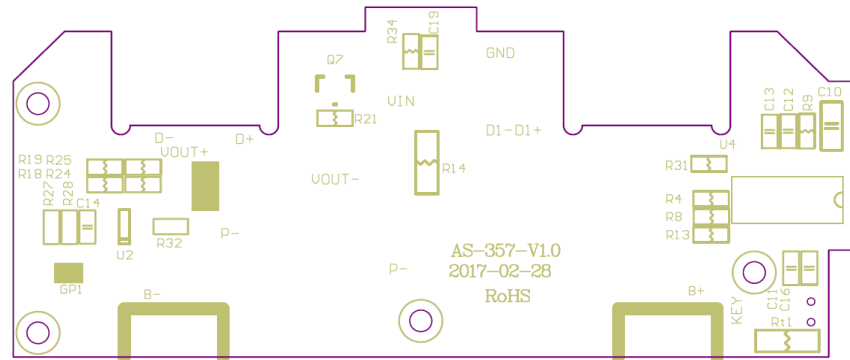
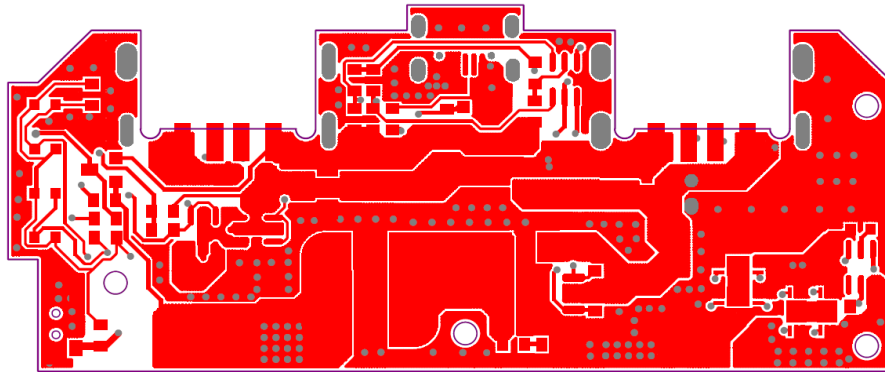
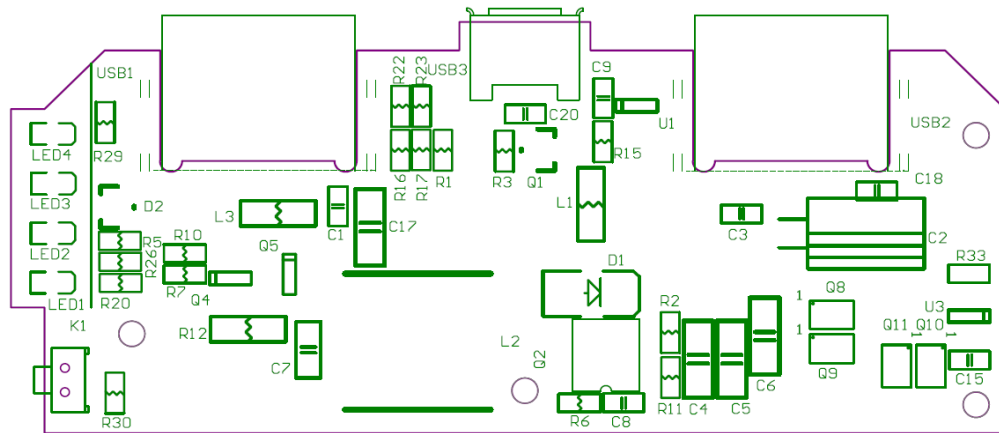
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Appendix 2
Circuit and Layout drawing

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Layout





Photos

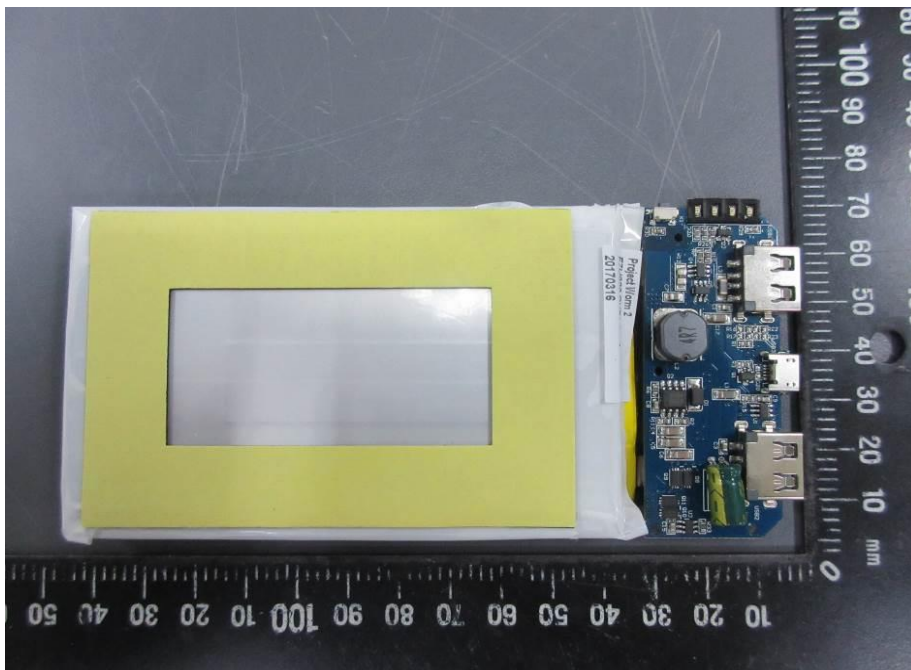
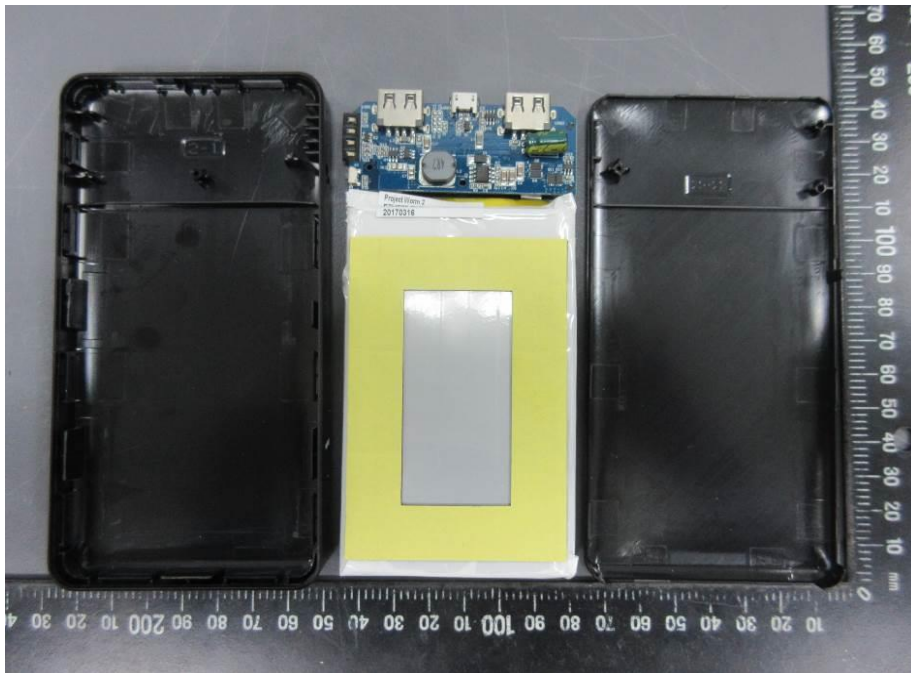
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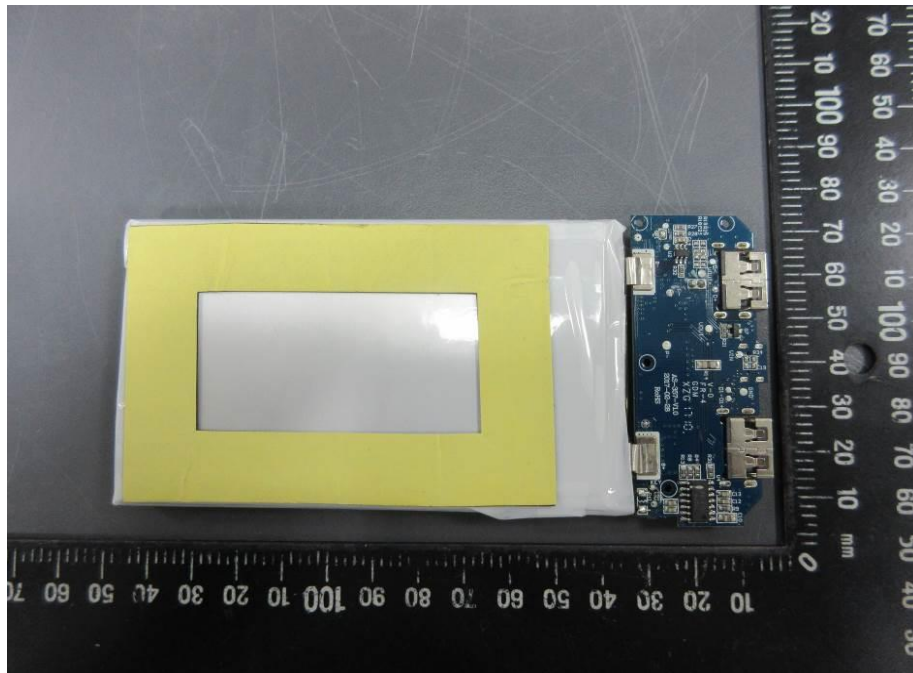
External view of EUT



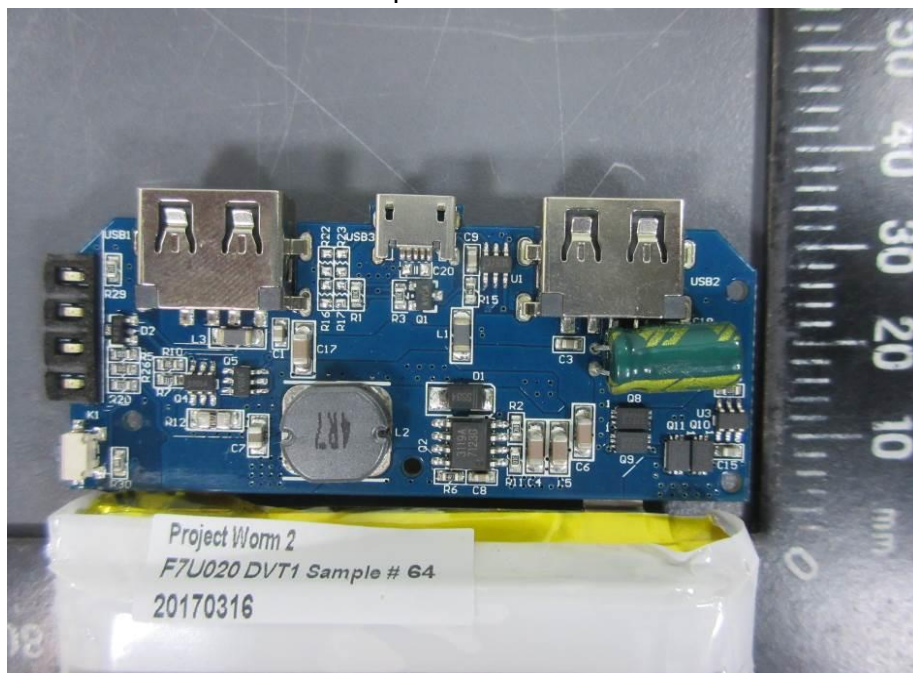
Internal view of EUT



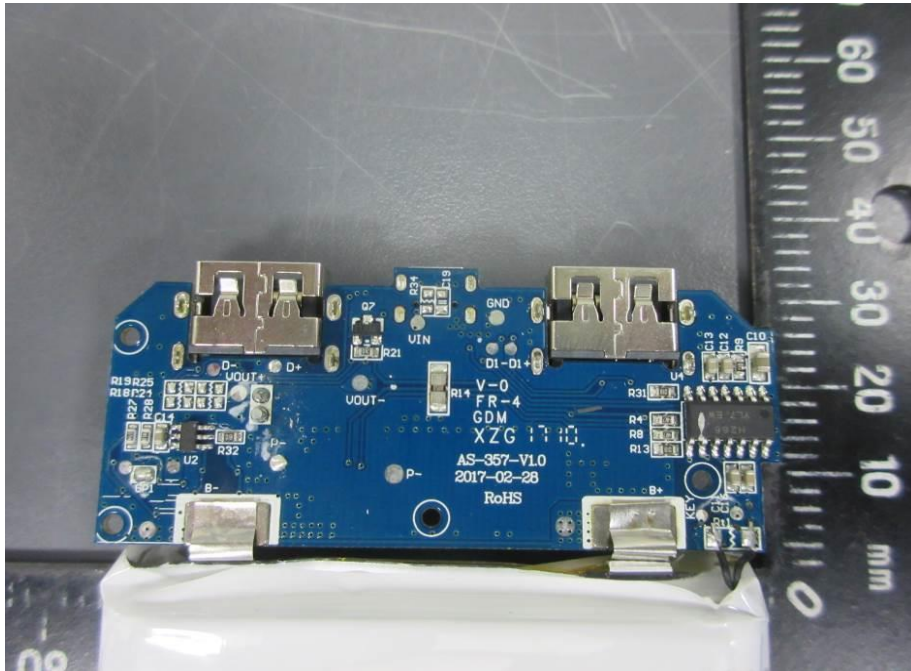
Internal view of EUT



Top view of PCB



Bottom view of PCB



From: Nick Kalra
Sent: Wednesday, December 20, 2017 11:55 AM PST
To: Andrew Camba
CC: Norbert von Boode
Subject: Re: Urgent Battery Enquiry

Sorry for the confusion on the silkscreen of the power pack.

Belkin promise is to deliver quality products by make sure the power packs are safe. One way we do this is that we test our products at a higher than minimal standards. To do the testing, we use 3rd party labs to test our battery packs at maximal conditions which is rate capacity listed on the power pack.

However, the actual capacity of the battery cells is what is advertised (ie 5000 mAh for 5000 mAh, 10000 mAh for 10000 mAh, 15000 to 15000 mAh).

From: Andrew Camba
Sent: Wednesday, December 20, 2017 10:01:35 AM
To: Nick Kalra
Cc: Norbert von Boode
Subject: Fwd: Urgent Battery Enquiry

Pls review, update, wordsmith- positive messaging/spin

From: Jamie Laing-Reece
Sent: Tuesday, December 19, 2017 8:01:03 PM
To: Josh Caulfield; Andrew Camba
Subject: RE: Urgent Battery Enquiry

Hi guys,

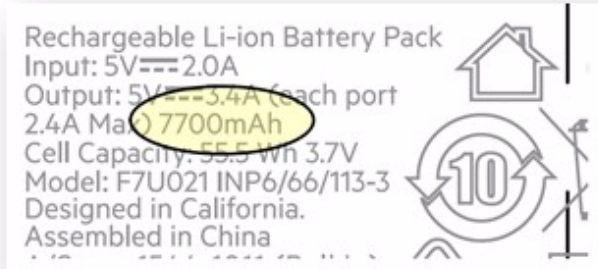
Nick provided me the below that PDM helped him pull together.

Just wanted to see if you think this is an acceptable explanation to share with the customer?
The silk screen of the 15K PP is below (image 1).

To help explain the silkscreen on Pocket Power, there may be confusion on the product markings. Belkin products are tested to a higher standard than our competitors. We use 3rd party labs that test to standards for all the regions that Belkin sells products into. In some cases, the regions (such as S. Korea and Taiwan), require that power bank (battery pack) products are marked with the measured capacity under full-rated load (and we cannot mark with the actual capacity of the lithium cells). The conflict is this number does not align with the actual capacity of the lithium cells that are built into the power bank (battery pack). The concern that the measured capacity under full-rated load is significantly different than the actual capacity of the lithium cells is a matter of efficiency. For example, if you were to drive your car at full-speed (pedal to floor), your gas efficiency in your automobile would be less than

typical driving conditions. The 3rd party test labs will test the products under this maximum condition whereas the actual use case would provide better numbers.

Sample Image (Silkscreen F7U021 15Ah).



Sample Image (Actual Product Showing QTY 3 5Ah cells = 15Ah).



From: Josh Caulfield
Sent: Wednesday, 20 December 2017 12:41 PM
To: Jamie Laing-Reece <Jamie.Laing-Reece@belkin.com>
Subject: Fwd: Urgent Battery Enquiry

Hi JLR

Can you send Drew the pictures?

Begin forwarded message:

From: Andrew Camba <Andrew.Camba@belkin.com>
Date: 20 December 2017 at 2:17:42 pm NZDT
To: Josh Caulfield <Josh.Caulfield@belkin.com>
Subject: Re: Urgent Battery Enquiry

Thanks Josh- do you guys have photos by chance?
I'll follow-up with them. Ugh.

From: Josh Caulfield <Josh.Caulfield@belkin.com>
Date: Tuesday, December 19, 2017 at 5:08 PM
To: Andrew Camba <Andrew.Camba@belkin.com>
Subject: Fwd: Urgent Battery Enquiry

Hi Drew

Looping you in...jc

Begin forwarded message:

From: Jamie Laing-Reece <Jamie.Laing-Reece@belkin.com>
Date: 20 December 2017 at 1:51:53 pm NZDT
To: Nick Kalra <Nick.Kalra@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>, Josh Caulfield <Josh.Caulfield@belkin.com>
Subject: Urgent Battery Enquiry

Hi Nick,

JB HiFi have flagged that the 10K and 5K PP both say a different mAh on the physical product being 6070mAh and 2900mAh Respectively.

They have removed stock from the shop floor until we confirm why there is conflicting information around mAh.

Could you please provide me some clarity as to why it does have this lower mAh on the products compared to packaging? We could lose massive business if we can't rectify or clarify the situation ASAP.

I really appreciate your help.

Thanks

JAMIE LAING-REECE

Product Manager ANZ

Belkin Limited

Tuggerah Business Park

Unit E, 2 Reliance Drive

Tuggerah NSW 2259

O +61 2 4350 4640

M +61 431 332 514



From: Nick Kalra
Sent: Wednesday, December 20, 2017 12:25 PM PST
To: Andrew Camba
CC: Norbert von Boode
Subject: Re: Urgent Battery Enquiry

Please disregard previous email...still undergoing changes.

From: Nick Kalra
Sent: Wednesday, December 20, 2017 11:55:03 AM
To: Andrew Camba
Cc: Norbert von Boode
Subject: Re: Urgent Battery Enquiry

Sorry for the confusion on the silkscreen of the power pack.

Belkin promise is to deliver quality products by make sure the power packs are safe. One way we do this is that we test our products at a higher than minimal standards. To do the testing, we use 3rd party labs to test our battery packs at maximal conditions which is rate capacity listed on the power pack.

However, the actual capacity of the battery cells is what is advertised (ie 5000 mAh for 5000 mAh, 10000 mAh for 10000 mAh, 15000 to 15000 mAh).

From: Andrew Camba
Sent: Wednesday, December 20, 2017 10:01:35 AM
To: Nick Kalra
Cc: Norbert von Boode
Subject: Fwd: Urgent Battery Enquiry

Pls review, update, wordsmith- positive messaging/spin

From: Jamie Laing-Reece
Sent: Tuesday, December 19, 2017 8:01:03 PM
To: Josh Caulfield; Andrew Camba
Subject: RE: Urgent Battery Enquiry

Hi guys,

Nick provided me the below that PDM helped him pull together.

Just wanted to see if you think this is an acceptable explanation to share with the customer?
The silk screen of the 15K PP is below (image 1).

To help explain the silkscreen on Pocket Power, there may be confusion on the product markings. Belkin products are tested to a higher standard than our competitors. We use 3rd party labs that test to standards for all the regions that Belkin sells products into. In some cases, the regions (such as S. Korea and Taiwan), require that power bank (battery pack)

products are marked with the measured capacity under full-rated load (and we cannot mark with the actual capacity of the lithium cells). The conflict is this number does not align with the actual capacity of the lithium cells that are built into the power bank (battery pack). The concern that the measured capacity under full-rated load is significantly different than the actual capacity of the lithium cells is a matter of efficiency. For example, if you were to drive your car at full-speed (pedal to floor), your gas efficiency in your automobile would be less than typical driving conditions. The 3rd party test labs will test the products under this maximum condition whereas the actual use case would provide better numbers.

Sample Image (Silkscreen F7U021 15Ah).



Sample Image (Actual Product Showing QTY 3 5Ah cells = 15Ah).



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I really appreciate your help.

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O +61 2 4350 4640

M +61 431 332 514



From: Nick Kalra
Sent: Wednesday, December 20, 2017 5:35 PM PST
To: Jamie Laing-Reece
CC: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: Re: Urgent Battery Enquiry

Hey Jamie,

I worked with PR to re-craft a response for you which is below. I will talk to Regulatory next to talk about next steps and get back to you. Let me know if any questions.

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

From: Nick Kalra
Sent: Wednesday, December 20, 2017 9:57:31 AM
To: Jamie Laing-Reece
Cc: Norbert von Boode; Josh Caulfield
Subject: Re: Urgent Battery Enquiry

Hey Jamie,

Can you give me an update on your conversation? Cheers. - Nick

From: Nick Kalra
Sent: Tuesday, December 19, 2017 6:11:35 PM
To: Jamie Laing-Reece
Cc: Norbert von Boode; Josh Caulfield
Subject: Re: Urgent Battery Enquiry

Hey Jamie - Wanted to make sure that I gave you a complete explanation to the difference in mAh that was noted. Worked with PDM with below response.

The last picture is to show that there is 3x5k mAh cells for 15k, but we can break open any power pack to show that there is indeed the battery cells that match the packaged capacity.

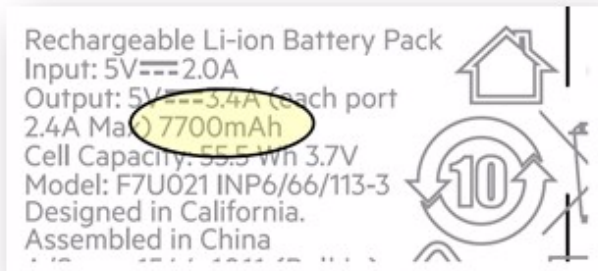
Let me know how I can further help. Cheers. - Nick

Hi Nick,

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driving conditions. The 3rd party test labs will test the products under this maximum condition whereas the actual use case would provide better numbers.

Sample Image (Silkscreen F7U021 15Ah).



Sample Image (Actual Product Showing QTY 3 5Ah cells = 15Ah).



From: Jamie Laing-Reece
Sent: Tuesday, December 19, 2017 4:51:53 PM
To: Nick Kalra
Cc: Norbert von Boode; Josh Caulfield
Subject: Urgent Battery Enquiry

Hi Nick,

JB HiFi have flagged that the 10K and 5K PP both say a different mAh on the physical product being 6070mAh and 2900mAh Respectively.

They have removed stock from the shop floor until we confirm why there is conflicting information around mAh.

Could you please provide me some clarity as to why it does have this lower mAh on the products compared to packaging? We could lose massive business if we can't rectify or clarify the situation ASAP.

I really appreciate your help.

Thanks

JAMIE LAING-REECE

Product Manager ANZ

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Tuggerah Business Park

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Tuggerah NSW 2259

O +61 2 4350 4640

M +61 431 332 514



From: Nick Kalra
Sent: Wednesday, December 20, 2017 7:54 PM PST
To: Jamie Laing-Reece
CC: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: Re: Urgent Battery Enquiry

You are okay to send this. I have to talk to Rajesh about what are next steps, but don't know how much discussion we will need

The response should serve as a explanation in a positive tone. Hopefully it settles the concerns of the buyer as they understand that that the capacity advertised on the box is the actual capacity.

From: Jamie Laing-Reece
Sent: Wednesday, December 20, 2017 7:03:54 PM
To: Nick Kalra
Cc: Norbert von Boode; Josh Caulfield; Andrew Camba
Subject: RE: Urgent Battery Enquiry

Thanks so much for this.

Am I okay to send this to the customer? Or should I await you talking to regulatory?

Thanks
Jamie

From: Nick Kalra
Sent: Thursday, 21 December 2017 12:35 PM
To: Jamie Laing-Reece <Jamie.Laing-Reece@belkin.com>
Cc: Norbert von Boode <Norbert.vonBoode@belkin.com>; Josh Caulfield <Josh.Caulfield@belkin.com>; Andrew Camba <Andrew.Camba@belkin.com>
Subject: Re: Urgent Battery Enquiry

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Cc: Norbert von Boode; Josh Caulfield
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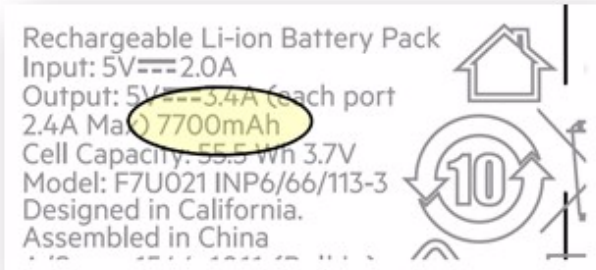
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Cc: Norbert von Boode; Josh Caulfield
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M +61 431 332 514



From: Vijendra Nalwad
Sent: Friday, May 11, 2018 5:53 PM PDT
To: Norbert von Boode
CC: Marco Peters; Melody Saffery; Andrew Camba; Nick Kalra; Rajesh Karki; Ernie Roberts; Stu Bush
Subject: Re: UL/ETL Certification for Power Banks

Hi Norbert,

I am okay with the proposed direction.

Thanks,

VJ.

Sent from my iPhone

On May 10, 2018, at 4:21 PM, Norbert von Boode <Norbert.vonBoode@belkin.com> wrote:

Hi VJ,

We have socialized this with legal as an on-going dialogue to address this issue with our customers and shared an aligned direction to remove the UL/ETL requirements. We also followed up with Matt Smalls and he doesn't see any issues from his side.

Thank you,
Norbert

From: Vijendra Nalwad <VJN@belkin.com>
Date: Wednesday, May 9, 2018 at 7:23 PM
To: Norbert von Boode <Norbert.vonBoode@belkin.com>
Cc: Marco Peters <marcop@belkin.com>, Melody Saffery <Melody.Tecson@belkin.com>, Andrew Camba <Andrew.Camba@belkin.com>, Nick Kalra <Nick.Kalra@belkin.com>, Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: RE: UL/ETL Certification for Power Banks

+Ernie and Stu.

Norbert,

Have we confirmed there are no risks from a transportation / logistics standpoint and legal stand point?

Thanks,

VJ.

From: Norbert von Boode
Sent: Wednesday, May 9, 2018 6:36 PM
To: Vijendra Nalwad <VJN@belkin.com>
Cc: Marco Peters <marcop@belkin.com>; Melody Saffery <Melody.Tecson@belkin.com>; Andrew Camba <Andrew.Camba@belkin.com>; Nick Kalra <Nick.Kalra@belkin.com>; Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: UL/ETL Certification for Power Banks

Hi VJ,

I heard Rajesh gave you a heads up on this, but we would like to move ahead and remove the UL/ETL certification from our power banks.

Belkin initially received this voluntary certification, which no specific country or customer requires, to leverage it as competitive advantage in quality over competitors. However, with the recent changes that mandates UL/ETL certified power banks to put both rated and cell capacity on the product, we've been creating a confusion with two different capacities communicated and receiving multiple inquiries on this from different customers across the globe. The latest inquiry was from Rogers, who ceased sales on our power banks and we're currently addressing this.

We would like to remove the UL/ETL certification requirement from our power banks, but continue testing internally based on UL/ETL standards to maintain our quality expectations. Attached are details we prepared for this week's escalation meeting, but unfortunately it didn't happen because of FIT's visit.

I wanted to reach out to you as the gatekeeper of quality to seek your recommendation. I talked with Melody as well about this and she is aligned.

Thank you,
Norbert

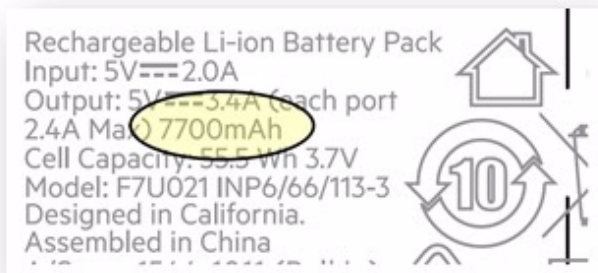
From: Nick Kalra
Sent: Wednesday, December 20, 2017 1:00 PM PST
To: Jen Warren
CC: Norbert von Boode
Subject: Rate Capacity- MPP

Hey Jen,

Following up on our conversation, below are the details of the situation as we discussed.

Please let me know if I need to clarify anything. Cheers. - Nick

Situation: We have two buyers, one from Australia and other from Dubia, have both stated that they are thinking of taking the Belkin power packs off the shelves. This is due to the print on the product that says a lower mAh (mAh is the unit measure of the power capacity a power pack can optimally carry) than what we have advertised on the product. For instance, the 15000 mAh power pack lists 7700 mAh on the fine print of the product as shown in the below screen shot.



To note, the advertised mAh on our power packs are correct as we do provide battery cells that equal to mAh we advertised (ie we do provide 3x5000mAh cells for a advertised 15000 mAh power pack.)

The lower mAh (ie the 7700 mAh listed on the 15000 mAh power pack) comes from a 3rd party lab that tests our products at maximal conditions. This is call the rated capacity. When tested under maximal conditions, there is a loss efficiency of the power transfer from the power pack to the device its charging. So, if compared to having two of the same device plugged into a power pack vs charging the same device 2x, there would be more power available on the latter option.

For certain regions, it is mandatory to list the rated capacity. However, the actual capacity will be higher for normal use cases.

Task: For the buyers, we need to craft a response on why there is a different capacity listed on the power pack. Can you assist on the development on the response so we can positively explain the difference to the buyers.

Action: Here is my draft response -

Belkin promise is to deliver quality products by make sure the power packs are safe and durable. One way we do this is that we test our products at a higher than minimal standards. To do the testing, we use 3rd party labs to test our battery packs at maximal conditions which

is rate capacity listed on the power pack. This is at worst-case situations where the product is maximally taxed so we know it will be safe in extreme situations.

Since we use a 3rd party lab, we list there findings on the power pack. However, the actual capacity is higher than the rated capacity listed on the product. For instance, if we break open any of our 15000 mAh Pocket Power 15k, you will see 3x5000 mAh battery cells.

Please let us know additional clarification or if there is anything else we can do.

**PAGES BELKIN-693 TO BELKIN-768 ARE REDACTED
BECAUSE THEY CONTAIN PERSONAL INFORMATION
RELATING TO BELKIN CUSTOMERS.**

From: Norbert von Boode
Sent: Thursday, December 21, 2017 5:14 PM PST
To: Nicoletta Laffi; Jenna Harling; Fawad Mir
CC: Nick Kalra; Sachin Mehta; SB Moon; Isabel Healy
Subject: Re: Nike packaging issue - URGENT

Dear all,

I synced up with SB. Based on the information provided below, we need to help the customer understand 1) what the difference between the advertised/cell capacity on our packaging and rated capacity on our product is, 2) why we need to have rated capacity on our product, and 3) whether this is common practice between other brands.

In summary,

- The advertised capacity listed on our packaging, i.e. 6700mAh, represents the battery cell capacity. The capacity listed on our product labeling, i.e. 4775mAh, represents the rated capacity
- UL testing standards of safety labs we contract for safety compliance and regulations in certain regions require battery packs to be marked with the rated capacity
- Other battery pack brands (who sell in these regions) also comply with these regulations and mark their battery packs with the rated capacity

Below is a more detailed explanation based on our inquiries to PDM and RC.

1. What are the two different capacities listed on our packaging and our product?

The advertised mAh on our battery pack packaging are correct. They represent the battery cell capacity in mAh, i.e. on Worm 3, we provide 3 x 5,000mAh cells and therefore we advertise 15,000mAh in our packaging.

The lower mAh on our product, e.g. Worm 3 lists 7,700mAh on the product's silk screen label, is a rated capacity – an electrical capacity that the battery pack ports outputs under more extreme conditions.

2. Why are the cell capacities and rated capacities different?

Several factors. One, the rated capacity is measured under maximal or full-rated load conditions, i.e. a Worm 3 would charge two devices at the same time on both ports. Compared to charging one device sequentially on a single port, there would be less power available in the first scenario (imagine driving your car at maximum speed – fuel efficiency would be less than during your typical driving speeds). Two, there will be energy loss or conversion loss due to internal circuitry.

3. Why do we need to show the rated capacity on the label of the product?

The rated capacity needs to be on the product, because it is mandated 1) by regulations in certain regions (e.g. South Korea, Taiwan, etc.), and 2) by safety labs that comply with the UL testing standards.

NOVEMBER 3, 2015

UL 2056

9

12 Capacity Verification Test

12.1 The marked electrical capacity of power bank, measured at the power output pin of output port, shall comply with the Standard for Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Secondary Lithium Cells and Batteries for Portable Applications, IEC 61960, Clause 7.3.1, Discharge Performance at 20 °C (Rated Capacity), and the modified test method in 12.2.

12.2 The power bank is discharged at a constant current equals to rated current of the output port, until its voltage is equal to the end-of-discharge voltage of the output port, specified by the manufacturer.

MARKINGS**13 General**

13.1 Unless otherwise superseded by a requirement in this Outline, power banks shall comply with the requirements in the Standard for Household and Commercial Batteries, UL 2054.

13.2 For electrical ratings, the following information shall be provided:

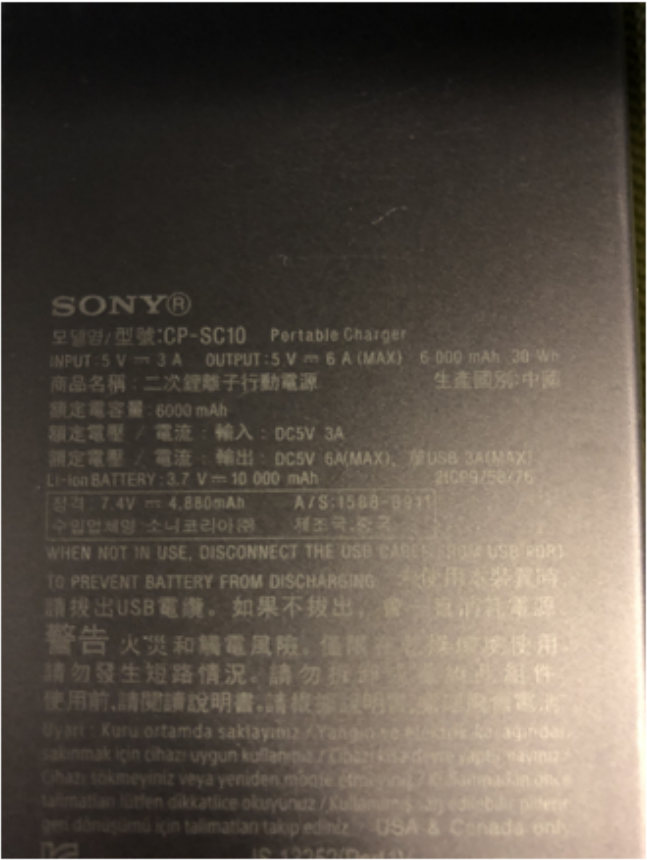
a) Input rating in Vdc or Vac and A. If there are more than one input ports, the rating of each port shall be provided;

b) Output rating in Vdc and A. If there are more than one output ports, it shall include rating of each port and the combined rating (if it is not equal to the summation of all ports); and

c) Electrical capacity in Ah or mAh. If there are more than one output ports/output ratings, either the capacity of each port/rating shall be provided, or the minimum capacity of these ports/ratings shall be provided.

4. How is the rated capacity shown in battery packs from other manufacturers?

Sony 10,000mAh Battery (Rated Capacity 6,000mAh on 30W, 4,880mAh on 45W)



ZMI (Xiaomi) 20,000mAh (Rated capacity 9,750mAh)



5. What is our PR response to this situation?

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

Please let me know if you have further comments/questions.

Thank you,
 Norbert

From: Nicoletta Laffi <nicoletta.laffi@belkin.com>

Date: Thursday, December 21, 2017 at 2:02 PM

To: Jenna Harling <jenna.harling@belkin.com>

Cc: Fawad Mir <Fawad.Mir@belkin.com>, Nick Kalra <Nick.Kalra@belkin.com>, Sachin Mehta <Sachin.Mehta@belkin.com>, SB Moon <sb.moon@belkin.com>, Isabel Healy <isabel.healy@belkin.com>, Norbert von Boode <Norbert.vonBoode@belkin.com>

Subject: Re: Nike packaging issue - URGENT

Hi Jenna

Pls align with SB and Norbert on this

I had a call with SB few hours ago, they are going to sync up today

We expect final reply and assessment next few hours to get back to customer

The initial email from team is dated 23rd of November so about a month ago

We now need a reply that retailers can use for end users or a decision on stock

Thank you

Envoyé de mon iPhone

Le 21 déc. 2017 à 22:20, Jenna Harling <jenna.harling@belkin.com> a écrit :

Hi Fawad,

As I didn't initially work on this project, I'll have to do some digging. I've reached out the EE Engineer lead to determine which is accurate. I believe they worked through a formula to determine how many times it could charge the watch AND phone, and then later how many times it could charge the watch only. This might be that change over in packaging but I'd like to confirm.

Once we understand, we can make a decision about stickering or packaging changes.

For the mAH, Norbert will provide more information.

Thank you for your patience!

Warm Regards and happy holidays,

JENNA HARLING

Product Manager

Belkin International, Inc.

12045 East Waterfront Drive

Playa Vista, CA 90094-2536

O: 310.751.2885

S: jennaharling.belkin

belkin.com

From: Fawad Mir

Sent: Wednesday, December 20, 2017 9:53 PM

To: Nick Kalra <Nick.Kalra@belkin.com>; Sachin Mehta <Sachin.Mehta@belkin.com>; Nicoletta Laffi <nicoletta.laffi@belkin.com>

Cc: Jenna Harling <jenna.harling@belkin.com>; SB Moon <sb.moon@belkin.com>; Isabel Healy <isabel.healy@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>

Subject: RE: Nike packaging issue - URGENT

Hi Nick,

We appreciate the official response but I think the actual issue has not been understood.

We have a batch of products in the market that have been marked and packaged incorrectly.

Front packaging states 16x charge when it should say 8X and the physical battery states 4775 mAh when it should say 6700 mAh (and does do in my own version of the product)

An example of the incorrect and correct packaging :

<image001.jpg>

From: Nick Kalra

Sent: 21 December 2017 05:32

To: Sachin Mehta <Sachin.Mehta@belkin.com>; Nicoletta Laffi <nicoletta.laffi@belkin.com>

Cc: Jenna Harling <jenna.harling@belkin.com>; SB Moon <sb.moon@belkin.com>; Fawad Mir <Fawad.Mir@belkin.com>; Isabel Healy <isabel.healy@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>

Subject: Re: Nike packaging issue - URGENT

Hey All,

We worked with Jen Warren on a response for the customer, which is below.

Talking with Regulatory next so we can develop next steps and timelines. Let me know if any feedback. - Nick

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

From: Sachin Mehta

Sent: Wednesday, December 20, 2017 11:07:51 AM

To: Nicoletta Laffi

Cc: Jenna Harling; SB Moon; Fawad Mir; Isabel Healy; Nick Kalra

Subject: Re: Nike packaging issue - URGENT

Can we first find out if the actual battery pack is of 6700 mAh or 4275 mAh.

Also stickers on the battery pack itself may be tedious as package will have to be opened - we may have to ask returns for re work.

Also the front package shows watch charging as 16x not 8x as original.

All of these needs to be sorted.

Let me know if sample is required for physical verification and testing.

Sachin

00 971 50 7576490

On Dec 20, 2017, at 10:50 PM, Nicoletta Laffi <nicoletta.laffi@belkin.com> wrote:

Jenna

Customer must be reassured about this being a mistake

Then we can discuss about restickering or return

Envoyé de mon iPhone

Le 20 déc. 2017 à 19:01, Jenna Harling <jenna.harling@belkin.com> a écrit :

Hi Team,

I've been trying to track down what happened but it should state 6700 mAh on pkg. I have a meeting with ICG today to discuss and determine course of action. Are we being asked to take back the stock or do we have an opportunity to sticker?

Once I have more information, I can share.

Thanks for your patience,

Jenna

From: SB Moon

Sent: Thursday, December 14, 2017 12:22 AM

To: Nicoletta Laffi <nicoletta.laffi@belkin.com>; Fawad Mir <Fawad.Mir@belkin.com>; Jenna Harling <jenna.harling@belkin.com>

Cc: Sachin Mehta <Sachin.Mehta@belkin.com>; Isabel Healy <isabel.healy@belkin.com>

Subject: Re: Nike packaging issue - URGENT

Jenna

Please get back to me with below asap.

Need to understand what this is.

SB Moon

Director of Channel Product Management, International

From: Nicoletta Laffi

Sent: Thursday, December 14, 2017 7:51:47 AM

To: Fawad Mir

Cc: Sachin Mehta; Isabel Healy; Melvin van Leeuwaarde; SB Moon; Jenna Harling

Subject: Re: Nike packaging issue - URGENT

SB, Jenna

In the absence of Izzy who can help to shade some light on this

We need to understand if it is a batch issue and in that case take all back also from

AE1 and replace with good stock

It is now urgent

Envoyé de mon iPhone

Le 14 déc. 2017 à 08:42, Fawad Mir <Fawad.Mir@belkin.com> a écrit :

Hi Izzy,

It's been 2 weeks and we have had no reply on this ?

We still have stock out in the channel with these errors.

Can we please have an urgent response and action?

Thanks

Fawad

From: Sachin Mehta

Sent: 24 November 2017 15:29

To: Isabel Healy <isabel.healy@belkin.com>

Cc: Fawad Mir <Fawad.Mir@belkin.com>; Nicoletta Laffi
<nicoletta.laffi@belkin.com>; Melvin van Leeuwaarde
<Melvin.vanLeeuwaarde@belkin.com>; SB Moon <sb.moon@belkin.com>
Subject: Fwd: Nike packaging issue

Few more pics from pack

<image001.jpg>

<image002.jpg>

<image003.jpg>

Sachin
00 971 50 7576490

Begin forwarded message:

From: Sachin Mehta <Sachin.Mehta@belkin.com>
Date: November 24, 2017 at 3:25:54 PM GMT+4
To: Isabel Healy <isabel.healy@belkin.com>
Cc: Yeonsu Kim <Yeonsu.Kim@belkin.com>, SB Moon <sb.moon@belkin.com>, Melvin van Leeuwaarde <Melvin.vanLeeuwaarde@belkin.com>, Nicoletta Laffi <nicoletta.laffi@belkin.com>, Fawad Mir <Fawad.Mir@belkin.com>
Subject: Re: Nike packaging issue

Hi Izzy

Here is the pic of actual product where the capacity mentioned is 4775mAh

<image004.jpg>

Sachin
00 971 50 7576490

On Nov 23, 2017, at 9:22 PM, Isabel Healy <isabel.healy@belkin.com> wrote:

Hi Sachin,

Please could you also send me a picture of the back of the box where it is stating the incorrect information.

This is the first time this has been raised. I will reach out to global on this.

Kind regards,

Izzy

Product Manager EMEA

Mobile: +44 7387 021021

From: Yeonsu Kim <Yeonsu.Kim@belkin.com>

Date: Thursday, 23 November 2017 at 14:34

To: Sachin Mehta <Sachin.Mehta@belkin.com>, Isabel Healy
<isabel.healy@belkin.com>

Cc: "SB (Sae) Moon" <sb.moon@belkin.com>, Melvin van Leeuwaarde
<Melvin.vanLeeuwaarde@belkin.com>, Nicoletta Laffi
<nicoletta.laffi@belkin.com>, Fawad Mir <Fawad.Mir@belkin.com>

Subject: Re: Nike packaging issue

Forwarding to Izzy for WPW.

Thank you,

Yeonsu Kim

On 23 Nov 2017, at 2:30 pm, Sachin Mehta <Sachin.Mehta@belkin.com>
wrote:

Hi Yeonsu

We have received a complaint from Dubai Duty Free regarding
F8J201btSLV:

1. mentioned capacity 4275 mAh only at the back of box - front is 6700.
2. Watch charging time is 16x instead of 8x (enclosed pic)

<image1.jpeg>

Can you please clarify on these.

Same packaging is at Etisalat as well.

Sachin

00 971 50 7576490

From: Nick Kalra
Sent: Tuesday, January 16, 2018 11:01 AM PST
To: Jenny Lai; Mitchell Suckle; Claire Park
CC: Evita Au; Bruce Kim; Norbert von Boode
Subject: Re: F7U019/020/021 Capacity enquiry

Hey Mitch - Was there a solution to modifying the regulatory print on the Pocket Powers (WORMs) since the low contrast made the print not easily visible?

Hey Jenny,

Today, I talked to Bruce about about this item. To explain the difference in difference capacity, please use this PR approved response.

"The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard."

The capacity is tested, so there is no predictive variable on the % drop, it is just tested at that.

But it makes sense the bigger the battery, the bigger the potential for efficiency loss.

As this is an explanation, I am looking into a longer-term solution. Please stayed tuned as I discuss with regulatory. Cheers. - Nick

From: Jenny Lai
Sent: Monday, January 8, 2018 1:25:22 AM
To: Nick Kalra
Cc: Evita Au; Bruce Kim
Subject: F7U019/020/021 Capacity enquiry

Hi Nick,

As talked to you before that we have some issue with the marking on battery pack (F7U019/F7U020/F7U021).

We are selling 5k/10k/15k but the marking on product is 2900/6070/7700mAh.

Here's the efficiency calculated according to the information on product:

Part	Cell Capacity (mAh)	Printed Capacity (mAh)	Efficiency %
F7U019	5,000	2,900	58%
F7U020	10,000	6,070	60.7%
F7U021	15,000	7,700	51.33%

As talked on the call, our efficiency is higher than that but would you please advise how we can explain or educate customers between our efficiency and the printed capacity efficiency?

Also, may I know why F7U021 15k efficiency is dropped to around 50%? 5k & 10k is around 60%....

On the other hand, as we had complaints on the printed color on product. Have we finally changed to a color to make it more visible?

Please advise.

Thank you
Jenny Lai

From: Rajesh Karki
Sent: Monday, April 30, 2018 9:41 AM PDT
To: Shraddha Patel
CC: Nick Kalra
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Shraddha,

If we need safety approval from a 3rd party lab then it is mandatory? Does Mophie has UL or ETL certification on their product?

Also we use "bt" sku so even if we don't do UL certification we still need to add it for Taiwan unless we create separate sku's.

Please discuss internally with PM team as I have already provided answer to all these questions during my discussion with PM team.

Thanks
Rajesh

From: Shraddha Patel
Sent: Monday, April 30, 2018 9:00 AM
To: Rajesh Karki <Rajesh.Karki@belkin.com>
Cc: Nick Kalra <Nick.Kalra@belkin.com>
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Rajesh,

Thanks for the details, very helpful. Is the UL 2056 for US mandatory testing?

Mophie doesn't have this kind of battery capacity listed on their boxes, and since they are our biggest competitor state side we want to make sure we understand the Industry requirements.

They have products in every major retailer, even the ones that are extremely critical about testing and certifications.

Best Regards,
Shraddha Patel
Technical Sales Engineer

Belkin International

O +1 310 751 2741
M +1 213 453 8306
Skype shraddha.patel14



From: Rajesh Karki
Sent: Monday, April 30, 2018 8:31 AM
To: Shraddha Patel <shraddha.patel@belkin.com>
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Shraddha,

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The 5000mAh is for the cell/battery capacity and not for the battery pack.

The rated capacity measurement (2900mAh) is required by UL 2056 for US and BSMI standard CNS 15364 for Taiwan.

12 Capacity Verification Test

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12.2 The power bank is discharged at a constant current equals to rated current of the output port, until its voltage is equal to the end-of-discharge voltage of the output port, specified by the manufacturer.

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c) Electrical capacity in Ah or mAh. If there are more than one output ports/output ratings, either the capacity of each port/rating shall be provided, or the minimum capacity of these ports/ratings shall be provided.

Below is a link directly from Taiwan BSMI website which was issued as a Public Notice to consumers explaining the rated battery pack capacity VS the cell capacity.

<https://www.bsmi.gov.tw/bsmiGIP/wSite/ct?xItem=56530&ctNode=815&mp=1>

Thanks

Rajesh

From: Shraddha Patel
Sent: Monday, April 30, 2018 8:06 AM
To: Rajesh Karki <Rajesh.Karki@belkin.com>
Subject: FW: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Rajesh,
Do you know which kind of testing is performed for battery capacity?
Our 5000mAh powerbank – can you advise as to why this is reading only 2900mAh in fine print.

Below is what I got from PM but now customer is asking for more details.

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

Best Regards,
Shraddha Patel
Technical Sales Engineer

Belkin International

O +1 310 751 2741
M +1 213 453 8306
Skype shraddha.patel14



From: Nick Kalra
Sent: Friday, December 29, 2017 10:21 AM
To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: Re: Chargeur portatif Belkin : KBCH2000

Hey Shraddha,

Mophie does not, but other competitors do. It depends on if they are a global brand or not.

From: Shraddha Patel
Sent: Thursday, December 21, 2017 11:10:11 AM

To: Nick Kalra; Norbert von Boode

Subject: RE: Chargeur portatif Belkin : KBCH2000

Thanks Nick, this is definitely helpful

Have we tested Mophie or like competitors to see if they do have the same? That will be the next question for sure from customers.

Best Regards,
Shraddha Patel
Technical Sales Engineer

Belkin International

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Skype shraddha.patel14



From: Nick Kalra

Sent: Wednesday, December 20, 2017 7:59 PM

To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>

Subject: Re: Chargeur portatif Belkin : KBCH2000

+Norbert

Here is something we draft with PR that you can share. This should serve as explanation about the difference. Please let me know if you have any questions.

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From: Shraddha Patel

Sent: Wednesday, December 20, 2017 7:48:45 PM

To: Nick Kalra

Subject: Fwd: Chargeur portatif Belkin : KBCH2000

Hey Nick,

I know we discussed this briefly this week.

Can you please get some details that we can share with customer

Regards,

Shraddha Patel

Begin forwarded message:

From: Wei Zhang <Wei.Zhang1@belkin.com>

Date: December 20, 2017 at 4:08:40 PM PST

To: Shraddha Patel <shraddha.patel@belkin.com>

Subject: Re: Chargeur portatif Belkin : KBCH2000

Did you get chance to check This ?

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To: Wei.Zhang1@belkin.com

Subject: Re: Chargeur portatif Belkin : KBCH2000

Lol! They come up with unique issues- let me look at one when on the office later today

Regards,

Shraddha Patel

On Dec 18, 2017, at 5:46 AM, Wei Zhang <Wei.Zhang1@belkin.com> wrote:

Do you have any ideas?

From: Kristen.Maluish@telus.com

Sent: December 18, 2017 8:28 AM

To: Wei.Zhang1@belkin.com

Cc: Kaitlin.Wright@telus.com

Subject: FW: Chargeur portatif Belkin : KBCH2000

Hey Wei,

I hope you had a good weekend!

Just wanted to pass along feedback from the field on the 5000mAh powerbank – can you advise as to why this is reading only 2900mAh? Wondering if it's a one off?

Thanks,

Kristen

Kristen Maluish | m: 416-670-3437 | Kristen.Maluish@telus.com

From: Abigail Ong
Sent: December 15, 2017 09:34 PM
To: Kristen Maluish <Kristen.Maluish@telus.com>; Hares Sivanrupan <Hares.Sivanrupan@telus.com>
Cc: Martin Otis <Martin.Otis@koodomobile.com>
Subject: FW: Chargeur portatif Belkin : KBCH2000

Hey Kristen,

I'm guessing this would make the most sense for you to take back to the manufacturer. Passing this on... not sure what the plans would be for this or if it is a one-off.

<image001.png>

Thanks,
Abby

From: Martin Otis
Sent: December 13, 2017 12:33 PM
To: Abigail Ong
Subject: Fwd: Chargeur portatif Belkin : KBCH2000

Hi Abby.

A customer noticed a problem on our KBCH2000 power bank charger. On the box, it says that the Belkin charger have a 5000mAh and on the power bank it says 2900mAh.

Can you send this to the proper person who manage this?

Thanks for your help😊

Envoyé depuis mon téléphone intelligent Samsung Galaxy.

----- Message d'origine -----

De : Gabrielle Groulx Boisvert <Gabrielle.Groulx_Boisvert@koodomobile.com>
Date : 17-12-13 12:10 PM (GMT-05:00)
À : Martin Otis <Martin.Otis@koodomobile.com>
Objet : Chargeur portatif Belkin : KBCH2000

Voilà la preuve , Merci à Claude avec ses yeux de chat d'avoir remarqué cela!

Je te l'ai encerclé car c'est écrit petit pas mal ... La description du sku : KBCH2000 dans le système indique aussi que cest 5000mah mais 2900mah sur la batterie elle même. Les 10 000mah sont en réalité 6070mah sur les batteries...assez étrange.

Bonne journée

Gabrielle Groulx-Boisvert | DIRECTRICE MAGASIN – 6874 LA GRANDE PLACE DES BOIS-FRANCS

C [819-740-7316](tel:819-740-7316) M [819-357-2654](tel:819-357-2654)

From: Shraddha Patel
Sent: Monday, April 30, 2018 9:42 AM PDT
To: Rajesh Karki
CC: Nick Kalra
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Rajesh. Thanks I will working with PM on the rest. Really appreciated you feedback.

Best Regards,
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Bonne journée

Gabrielle Groulx-Boisvert | DIRECTRICE MAGASIN – 6874 LA GRANDE PLACE DES BOIS-FRANCS
C 819-740-7316 M 819-357-2654

From: Shraddha Patel
Sent: Tuesday, May 1, 2018 2:39 PM PDT
To: Nick Kalra; Matthew Wold; Jai Lozan
CC: Rajesh Karki; Norbert von Boode; Chris Rising; Wei Zhang
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)
Attachments: PowerPack Capacity issue.pptx
Importance: High

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As of today they have quarantined all our product from the stores for F7U019, F7U020 due to the confusion created by rated capacity and maximum capacity.

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Attached you will find the PPT identify the battery capacity issue.

Power packs are important category for our channel and Belkin, we want to make sure we resolve this issue to hold our current placement and have the opportunities for future growth.
 Please let me know if you need any additional details.

Best Regards,
Shraddha Patel
 Technical Sales Engineer

Belkin International

O +1 310 751 2741
 M +1 213 453 8306
 Skype shraddha.patel14



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Sent: Monday, April 30, 2018 9:42 AM
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Cc: Nick Kalra <Nick.Kalra@belkin.com>
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To: Shraddha Patel <shraddha.patel@belkin.com>

Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

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MARKINGS

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Below is a link directly from Taiwan BSMI website which was issued as a Public Notice to consumers explaining the rated battery pack capacity VS the cell capacity.

<https://www.bsmi.gov.tw/bsmiGIP/wSite/ct?xItem=56530&ctNode=815&mp=1>

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To: Rajesh Karki <Rajesh.Karki@belkin.com>
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To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
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To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
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Regards,
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Kristen Maluish | m: 416-670-3437 | Kristen.Maluish@telus.com

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Sent: December 15, 2017 09:34 PM
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Abby

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Can you send this to the proper person who manage this?

Thanks for your help😊

Envoyé depuis mon téléphone intelligent Samsung Galaxy.

----- Message d'origine -----

De : Gabrielle Groulx Boisvert <Gabrielle.Groulx_Boisvert@koodomobile.com>
Date : 17-12-13 12:10 PM (GMT-05:00)
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Objet : Chargeur portatif Belkin : KBCH2000

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Kristen Maluish | m: 416-670-3437 | Kristen.Maluish@telus.com

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C 819-740-7316 M 819-357-2654

From: Nick Kalra
Sent: Wednesday, January 31, 2018 5:10 PM PST
To: Kailee Loughlin; Jamie Laing-Reece; Jenny Lai; Yeonsu Kim
CC: Bruce Kim; SB Moon; David DeMartra; Norbert von Boode
Subject: MPP: RPM Items (1/31)
Attachments: MPP 104 2.1.pptx

Hey All - In an effort to be efficient, I have include multiple items on this one email. Hope it helps. Thanks. - Nick

Pocket Power Promos

Per conversations at the PM summit, it time to plan for promos for the Pocket Power series. We will need to do early build out of inventories to manage spikes in demands for these upcoming promos.

Action: RPMs to give feedback on following (due 2/14):

- What/When are the opportunities for promos up to May 2018?
- What type of promotions do you want to do?
- Project volumes?
- Recommended price?

Colors: MPP 101 and 103

For MPP 101 and 103, we are going with two color versions: black and pink versions. When looking at the Pocket Power colors sold in in 2017, black and pink were clear winners. Reducing to two color options will save on peg space which I have received feedback is limited.

Below is the summary of the 2017 sell-in data broken up by Pocket Power 5k and 10k + colors.

Action: Please let me know if you have any feedback by 2/14

<u>Pocket Power 5k</u>		<u>Pocket Power 10k</u>	
Black	52%	Black	55%
Pink	33%	Pink	32%
Silver	14%	Silver	13%

Rated VS Marketed Capacity On Pocket Powers

We had customers calling out that the Pocket Power series has a different capacity listed on the product than whats listed on the package. To review, the capacity written on on the power pack is a rated(tested and worst-case conditions) capacity. We aren't allowed to put the marketed capacity on the product. Potential solutions:

*List the product name (ie Pocket Power 5k, etc) on the product.

*Write the rated and marketed capacity on the package

Action: Follow-up with customers to see if these solutions solves their concerns so we can continue or start selling the product into their stores. Due 2/14

MPP 101

Targeted Development Gate: 2/14

Ex-Factory: Working towards bringing in ex-factory date to 5/18.

Delay: I have talked to some of the RPM, but for those who I haven't - MPP 101 is delayed.

However, we have been able to bring it in to early June and still working to bring it in further to 5/18 for major customers reseting in the spring.

-What is being done: 1) PDM is scheduling tasks in parallel and identifying where we can take risks to pull in the schedule. This is actively being done. 2) Pass-Thru charging has been removed to speed up development, but we are looking to add the feature back in with a revision of the project (more details to come.)

-Confidence: Please know that we are not taking these delays lightly. It is our desire to build confidence in hitting targeted dates for power packs. Initiatives talked about at the PM summit (development model, projected timelines, and considering store reset dates) will improve our success rate of hitting date targets.

MPP 103 (5k/10k) Retail

Target Development Gate: 2/14

Projected Ex-Factory: 8/1

1) MPP 103 FIMOs - Please get approvals from your regional finance counterparts on the FIMO as you are sending me your feedback which is due tomorrow (from another email.) Global finance has been asking to make sure that regional finance has been involved, so anything we can do upfront will help me speed up the conversation.

Action: Feedback on volumes and assumptions still due tomorrow (2/1). Please get regional finance feedback/approval.

2) PDM is close to confirming schedule, which has an ex-factory of 8/1 for America and EMEA. I believe this is late for Americas (please confirm) for fall resets. When does ANZ and APEA need it?

Action: Feedback on ex-factory date due 2/7.

MPP 104

Current Projected Ex-Factory: 9/26 (PDM actively bring in the date)

Based on regional feedback at the PM summit, we are adding a retail version of MPP 104 (PVP attached.) Its a LTG 15 Power Pack that includes:

15k Capacity (3x5k mAh cells)

USB-A 12W

LTG Receptacle 12W

USB-C PD 2.0 27W

USB-A to LTG Cable (Apple doesnt allow 3rd parties to include a USB-C to LTG cable)

Color - Black

MSRP - \$129.95

Target FOB - \$28.89

The value of this product is fast charge iPhone 8/8+/X to 50% in 30 minutes. Or, you can charge a MacBook pro on the go 1x. Moreover, this would be the flagship LTG power pack complimenting MPP 103 line up.

Action: Please work with your channel counterparts (if you have any) to come up with your volume projections from your end per channel. In parallel, I will be working on the FIMO.

Due 2/14

From: Shraddha Patel
Sent: Wednesday, May 2, 2018 12:04 PM PDT
To: Nick Kalra; Matthew Wold; Jai Lozan
CC: Rajesh Karki; Norbert von Boode; Chris Rising; Wei Zhang
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Nick,

Hope you had a chance to review and understand the request.

I know Marketing has already reached out to you and awaiting your feedback so they can address their action items.

Do you have estimated time line on things we can respond to the customer with updated on items they requested?

Best Regards,
Shraddha Patel
 Technical Sales Engineer

Belkin International

O +1 310 751 2741
 M +1 213 453 8306
 Skype shraddha.patel14



From: Shraddha Patel
Sent: Tuesday, May 01, 2018 2:39 PM
To: Nick Kalra <Nick.Kalra@belkin.com>; Matthew Wold <Matt.Wold@belkin.com>; Jai Lozan <Jai.Loza@belkin.com>
Cc: Rajesh Karki <Rajesh.Karki@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>; Chris Rising <Chris.Rising@belkin.com>; Wei Zhang <Wei.Zhang1@belkin.com>
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)
Importance: High

Nick and Team,
 We just had a call with our customer Roger-Canadian Telco.

As of today they have quarantined all our product from the stores for F7U019, F7U020 due to the confusion created by rated capacity and maximum capacity.

We need to take quick actions for them to be able to get the products back out on the shelf and selling. We would face liabilities for inventory if we don't respond urgently.

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 - b. They would link their web page to our resource center for this information to help educate the consumer.
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- 5) How will this be addressed moving forward – will there be a permanent change to batteries (printing max and min capacity on battery itself, not do the UL testing, Regionalize the SKUs...)

Attached you will find the PPT identify the battery capacity issue.

Power packs are important category for our channel and Belkin, we want to make sure we resolve this issue to hold our current placement and have the opportunities for future growth.

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Cc: Nick Kalra <Nick.Kalra@belkin.com>
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To: Rajesh Karki <Rajesh.Karki@belkin.com>

Cc: Nick Kalra <Nick.Kalra@belkin.com>

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They have products in every major retailer, even the ones that are extremely critical about testing and certifications.

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Sent: Monday, April 30, 2018 8:31 AM

To: Shraddha Patel <shraddha.patel@belkin.com>

Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Shraddha,

The rated capacity is the actual measurement of the capacity of the battery pack.

The 5000mAh is for the cell/battery capacity and not for the battery pack.

The rated capacity measurement (2900mAh) is required by UL 2056 for US and BSMI standard CNS 15364 for Taiwan.

12 Capacity Verification Test

12.1 The marked electrical capacity of power bank, measured at the power output pin of output port, shall comply with the Standard for Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Secondary Lithium Cells and Batteries for Portable Applications, IEC 61960, Clause 7.3.1, Discharge Performance at 20 °C (Rated Capacity), and the modified test method in 12.2.

12.2 The power bank is discharged at a constant current equals to rated current of the output port, until its voltage is equal to the end-of-discharge voltage of the output port, specified by the manufacturer.

MARKINGS

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13.1 Unless otherwise superseded by a requirement in this Outline, power banks shall comply with the requirements in the Standard for Household and Commercial Batteries, UL 2054.

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b) Output rating in Vdc and A. If there are more than one output ports, it shall include rating of each port and the combined rating (if it is not equal to the summation of all ports); and

c) Electrical capacity in Ah or mAh. If there are more than one output ports/output ratings, either the capacity of each port/rating shall be provided, or the minimum capacity of these ports/ratings shall be provided.

Below is a link directly from Taiwan BSMI website which was issued as a Public Notice to consumers explaining the rated battery pack capacity VS the cell capacity.

<https://www.bsmi.gov.tw/bsmiGIP/wSite/ct?xItem=56530&ctNode=815&mp=1>

Thanks
Rajesh

From: Shraddha Patel

Sent: Monday, April 30, 2018 8:06 AM

To: Rajesh Karki <Rajesh.Karki@belkin.com>

Subject: FW: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

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Below is what I got from PM but now customer is asking for more details.

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

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From: Nick Kalra
Sent: Friday, December 29, 2017 10:21 AM
To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: Re: Chargeur portatif Belkin : KBCH2000

Hey Shraddha,

Mophie does not, but other competitors do. It depends on if they are a global brand or not.

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To: Nick Kalra; Norbert von Boode
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Have we tested Mophie or like competitors to see if they do have the same? That will be the next question for sure from customers.

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From: Nick Kalra
Sent: Wednesday, December 20, 2017 7:59 PM
To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: Re: Chargeur portatif Belkin : KBCH2000

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Can you please get some details that we can share with customer

Regards,
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Lol! They come up with unique issues- let me look at one when on the office later today

Regards,
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On Dec 18, 2017, at 5:46 AM, Wei Zhang <Wei.Zhang1@belkin.com> wrote:

Do you have any ideas?

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Cc: Kaitlin.Wright@telus.com
Subject: FW: Chargeur portatif Belkin : KBCH2000

Hey Wei,

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Just wanted to pass along feedback from the field on the 5000mAh powerbank – can you advise as to why this is reading only 2900mAh? Wondering if it's a one off?

Thanks,
Kristen

Kristen Maluish | m: 416-670-3437 | Kristen.Maluish@telus.com

From: Abigail Ong
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To: Kristen Maluish <Kristen.Maluish@telus.com>; Hares Sivanrupan <Hares.Sivanrupan@telus.com>

Cc: Martin Otis <Martin.Otis@koodomobile.com>

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Hey Kristen,

I'm guessing this would make the most sense for you to take back to the manufacturer. Passing this on... not sure what the plans would be for this or if it is a one-off.

<image001.png>

Thanks,

Abby

From: Martin Otis

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Hi Abby.

A customer noticed a problem on our KBCH2000 power bank charger. On the box, it says that the Belkin charger have a 5000mAh and on the power bank it says 2900mAh.

Can you send this to the proper person who manage this?

Thanks for your help😊

Envoyé depuis mon téléphone intelligent Samsung Galaxy.

----- Message d'origine -----

De : Gabrielle Groulx Boisvert <Gabrielle.Groulx_Boisvert@koodomobile.com>

Date : 17-12-13 12:10 PM (GMT-05:00)

À : Martin Otis <Martin.Otis@koodomobile.com>

Objet : Chargeur portatif Belkin : KBCH2000

Voilà la preuve , Merci à Claude avec ses yeux de chat d'avoir remarqué cela!

Je te l'ai encerclé car c'est écrit petit pas mal ... La description du sku : KBCH2000 dans le système indique aussi que cest 5000mah mais 2900mah sur la batterie elle même. Les 10 000mah sont en réalité 6070mah sur les batteries...assez étrange.

Bonne journée

Gabrielle Groulx-Boisvert | DIRECTRICE MAGASIN – 6874 LA GRANDE PLACE DES BOIS-FRANCS
C 819-740-7316 M 819-357-2654

From: Nick Kalra
Sent: Wednesday, May 2, 2018 1:30 PM PDT
To: Shraddha Patel; Matthew Wold; Jai Lozan
CC: Rajesh Karki; Norbert von Boode; Chris Rising; Wei Zhang
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Hello Shraddha/Team,

I setup a meeting between regulatory, marketing, and PR to help craft responses per each point below. After we talk to the group tomorrow, we can confirm deadlines; however, my goal is to have items drafted by a week. As far as long term change, we will need to have a separate conversation on if we gain a competitive advantage by keeping UL/ETL certs.

Will keep the group updated. Thanks. - Nick

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To: Nick Kalra
Subject: Re: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Nick,

Please add me to that meeting. I don't see an invite.

Thanks,

Jai

Get [Outlook for Android](#)

From: Nick Kalra
Sent: Wednesday, May 2, 2018 1:30:56 PM
To: Shraddha Patel; Matthew Wold; Jai Lozan
Cc: Rajesh Karki; Norbert von Boode; Chris Rising; Wei Zhang
Subject: Re: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hello Shraddha/Team,

I setup a meeting between regulatory, marketing, and PR to help craft responses per each point below. After we talk to the group tomorrow, we can confirm deadlines; however, my goal is to have items drafted by a week. As far as long term change, we will need to have a separate conversation on if we gain a competitive advantage by keeping UL/ETL certs.

Will keep the group updated. Thanks. - Nick

From: Shraddha Patel
Sent: Wednesday, May 2, 2018 12:04:41 PM
To: Nick Kalra; Matthew Wold; Jai Lozan
Cc: Rajesh Karki; Norbert von Boode; Chris Rising; Wei Zhang
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Nick,

Hope you had a chance to review and understand the request.

I know Marketing has already reached out to you and awaiting your feedback so they can address their action items.

Do you have estimated time line on things we can respond to the customer with updated on items they requested?

Best Regards,
Shraddha Patel
Technical Sales Engineer

Belkin International

O +1 310 751 2741
M +1 213 453 8306
Skype shraddha.patel14



From: Shraddha Patel

Sent: Tuesday, May 01, 2018 2:39 PM

To: Nick Kalra <Nick.Kalra@belkin.com>; Matthew Wold <Matt.Wold@belkin.com>; Jai Lozan <Jai.Lozan@belkin.com>

Cc: Rajesh Karki <Rajesh.Karki@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>; Chris Rising <Chris.Rising@belkin.com>; Wei Zhang <Wei.Zhang1@belkin.com>

Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Importance: High

Nick and Team,

We just had a call with our customer Roger-Canadian Telco.

As of today they have quarantined all our product from the stores for F7U019, F7U020 due to the confusion created by rated capacity and maximum capacity.

We need to take quick actions for them to be able to get the products back out on the shelf and selling. We would face liabilities for inventory if we don't respond urgently.

- 1) Our website, portable power 101 resource center needs to be updated ASAP to explain this rated and maximum capacity difference and impact to consumer.
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- 3) Need one pager that will go out to each stores explaining quality of our batteries as well as this capacity difference.
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Attached you will find the PPT identify the battery capacity issue.

Power packs are important category for our channel and Belkin, we want to make sure we resolve this issue to hold our current placement and have the opportunities for future growth.

Please let me know if you need any additional details.

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Cc: Nick Kalra <Nick.Kalra@belkin.com>
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Sent: Monday, April 30, 2018 8:31 AM
To: Shraddha Patel <shraddha.patel@belkin.com>
Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hi Shraddha,

The rated capacity is the actual measurement of the capacity of the battery pack.

The 5000mAh is for the cell/battery capacity and not for the battery pack.

The rated capacity measurement (2900mAh) is required by UL 2056 for US and BSMI standard CNS 15364 for Taiwan.

12 Capacity Verification Test

12.1 The marked electrical capacity of power bank, measured at the power output pin of output port, shall comply with the Standard for Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Secondary Lithium Cells and Batteries for Portable Applications, IEC 61960, Clause 7.3.1, Discharge Performance at 20 °C (Rated Capacity), and the modified test method in 12.2.

12.2 The power bank is discharged at a constant current equals to rated current of the output port, until its voltage is equal to the end-of-discharge voltage of the output port, specified by the manufacturer.

MARKINGS

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b) Output rating in Vdc and A. If there are more than one output ports, it shall include rating of each port and the combined rating (if it is not equal to the summation of all ports); and

c) Electrical capacity in Ah or mAh. If there are more than one output ports/output ratings, either the capacity of each port/rating shall be provided, or the minimum capacity of these ports/ratings shall be provided.

Below is a link directly from Taiwan BSMI website which was issued as a Public Notice to consumers explaining the rated battery pack capacity VS the cell capacity.

<https://www.bsmi.gov.tw/bsmiGIP/wSite/ct?xItem=56530&ctNode=815&mp=1>

Thanks
Rajesh

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To: Rajesh Karki <Rajesh.Karki@belkin.com>
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Our 5000mAh powerbank – can you advise as to why this is reading only 2900mAh in fine print.

Below is what I got from PM but now customer is asking for more details.

The Belkin promise to deliver the highest quality products translates to the way we conduct testing. We commissioned third party labs to test our power banks and are legally required as a global company to communicate the product's full spectrum of capacity. Its maximum capacity is on package and its minimum capacity is noted in fine print on the product. The minimum capacity is also known as the "rated capacity" and is our way of testing products under the most extreme conditions to ensure that they operate above and beyond the industry standard.

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Belkin International

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Skype shraddha.patel14



From: Nick Kalra
Sent: Friday, December 29, 2017 10:21 AM
To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: Re: Chargeur portatif Belkin : KBCH2000

Hey Shraddha,
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To: Nick Kalra; Norbert von Boode
Subject: RE: Chargeur portatif Belkin : KBCH2000

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To: Shraddha Patel <shraddha.patel@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>
Subject: Re: Chargeur portatif Belkin : KBCH2000

+Norbert

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Hey Nick,
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Can you please get some details that we can share with customer

Regards,

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Subject: Re: Chargeur portatif Belkin : KBCH2000

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To: Wei.Zhang1@belkin.com
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Lol! They come up with unique issues- let me look at one when on the office later today

Regards,
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On Dec 18, 2017, at 5:46 AM, Wei Zhang <Wei.Zhang1@belkin.com> wrote:

Do you have any ideas?

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Sent: December 18, 2017 8:28 AM
To: Wei.Zhang1@belkin.com
Cc: Kaitlin.Wright@telus.com
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Hey Wei,

I hope you had a good weekend!

Just wanted to pass along feedback from the field on the 5000mAh powerbank – can you advise as to why this is reading only 2900mAh? Wondering if it's a one off?

Thanks,
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Kristen Maluish | m: 416-670-3437 | Kristen.Maluish@telus.com

From: Abigail Ong
Sent: December 15, 2017 09:34 PM
To: Kristen Maluish <Kristen.Maluish@telus.com>; Hares Sivanrupan <Hares.Sivanrupan@telus.com>

Cc: Martin Otis <Martin.Otis@koodomobile.com>

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I'm guessing this would make the most sense for you to take back to the manufacturer. Passing this on... not sure what the plans would be for this or if it is a one-off.

<image001.png>

Thanks,

Abby

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Hi Abby.

A customer noticed a problem on our KBCH2000 power bank charger. On the box, it says that the Belkin charger have a 5000mAh and on the power bank it says 2900mAh.

Can you send this to the proper person who manage this?

Thanks for your help😊

Envoyé depuis mon téléphone intelligent Samsung Galaxy.

----- Message d'origine -----

De : Gabrielle Groulx Boisvert <Gabrielle.Groulx_Boisvert@koodomobile.com>

Date : 17-12-13 12:10 PM (GMT-05:00)

À : Martin Otis <Martin.Otis@koodomobile.com>

Objet : Chargeur portatif Belkin : KBCH2000

Voilà la preuve , Merci à Claude avec ses yeux de chat d'avoir remarqué cela!

Je te l'ai encerclé car c'est écrit petit pas mal ... La description du sku : KBCH2000 dans le système indique aussi que cest 5000mah mais 2900mah sur la batterie elle même. Les 10 000mah sont en réalité 6070mah sur les batteries...assez étrange.

Bonne journée

Gabrielle Groulx-Boisvert | DIRECTRICE MAGASIN – 6874 LA GRANDE PLACE DES BOIS-FRANCS

C 819-740-7316 **M** 819-357-2654

From:
Sent: Thursday, May 3, 2018 8:00 PM PDT
To:
Subject: Re: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

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Sent: Tuesday, May 1, 2018 2:41 PM
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Subject: Re: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Hey All,

We got the team together tonight to move on items listed by Shraddha. We have an official kickoff meeting on Monday, but everyone already working on items.

We will prioritize to get stickers done next week so customers have something to put on packages. The 1-pager and resource center target completion is May 14th.

Will keep everyone update on progress. Please let me know if any questions as we work through the items. Thank you. - Nick

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From: Shraddha Patel

Sent: Tuesday, May 01, 2018 2:39 PM

To: Nick Kalra <Nick.Kalra@belkin.com>; Matthew Wold <Matt.Wold@belkin.com>; Jai Lozan <Jai.Lozan@belkin.com>

Cc: Rajesh Karki <Rajesh.Karki@belkin.com>; Norbert von Boode <Norbert.vonBoode@belkin.com>; Chris Rising <Chris.Rising@belkin.com>; Wei Zhang <Wei.Zhang1@belkin.com>

Subject: RE: Chargeur portatif Belkin : KBCH2000 -- 5000mAh powerbank (worm)

Importance: High

Nick and Team,

We just had a call with our customer Roger-Canadian Telco.

As of today they have quarantined all our product from the stores for F7U019, F7U020 due to the confusion created by rated capacity and maximum capacity.

We need to take quick actions for them to be able to get the products back out on the shelf and selling. We would face liabilities for inventory if we don't respond urgently.

- 1) Our website, portable power 101 resource center needs to be updated ASAP to explain this rated and maximum capacity difference and impact to consumer.
 - a. We need to provide clear date when this will be executed, timing is really critical on how quickly we get this done.
 - b. They would link their web page to our resource center for this information to help educate the consumer.
- 2) They want a label that goes on the packaging of the product that calls out a range of this capacity to avoid consumer returns and confusion.
 - a. Currently they have faced returns and upset customer due to miss-interpretation of the information on the battery pack itself (2900mah rated capacity for 5K on pkg).
- 3) Need one pager that will go out to each stores explaining quality of our batteries as well as this capacity difference.
 - a. Once we have the one pager and label ready Belkin Sales will be responsible for send it to each individual stores.
- 4) They brought up that our F8M989/992 (pervious gen batteries do not have this issue) Capacity on the packaging and battery itself are the same.
 - a. Why does the new battery series have different capacity ratings?
 - b. I see there is ELT logo on those battery, did they not follow the same safety testing standards.
- 5) How will this be addressed moving forward – will there be a permanent change to batteries (printing max and min capacity on battery itself, not do the UL testing, Regionalize the SKUs...)

Attached you will find the PPT identify the battery capacity issue.

Power packs are important category for our channel and Belkin, we want to make sure we resolve this issue to hold our current placement and have the opportunities for future growth.

Please let me know if you need any additional details.

Best Regards,
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Technical Sales Engineer

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